



Linda Jacobson (3 Copies)
RCRA Project Manager
US EPA Region VIII
8ENF-T
1595 Wynkoop Street
Denver, Colorado 80202-1129

July 8, 2009

SENT BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

**CONSENT DECREE
CIVIL ACTION NO. CV 98-3-H-CCL
EAST HELENA SITE
WORK PERFORMED IN JUNE 2009
PROGRESS REPORT #126**

Dear Ms. Jacobson:

On May 5, 1998, Asarco and the United States Environmental Protection Agency (EPA) entered into a Consent Decree (Decree) to further the objectives of the Resource Conservation and Recovery Act (RCRA) and the Clean Water Act (CWA). Section XI of the Decree (Reporting: Corrective Action) requires Asarco to submit certified monthly progress reports to EPA which discuss the actions taken by Asarco in achieving compliance with the Decree. The reports are to be submitted to EPA no later than the twentieth (20th) day of the following month. The following describes only those activities that have occurred or are related to projects performed during June 2009 and early July 2009. The historical actions taken by Asarco in achieving compliance with the Decree are contained in previous monthly progress reports.

- a. **Describe the actions, progress, and status of projects which have been undertaken pursuant to Part VII of the Decree;**

On June 9, 2009, Asarco submitted by electronic mail the updated costs for well construction, development, slug testing, sampling, analysis, and reporting for the 2009 Supplemental Groundwater Investigation, as amended.

2009 Cleaning and Demolition Work Plan

On June 1, 2009, EPA, in consultation with the Montana Department of Environmental Quality advised Asarco to proceed with the selection of URS/CWC as the prime contractor for performing the tasks set forth in the 2009 Cleaning and Demolition Work Plan, including selecting Express Services to complete the tasks outlined in Additive Alternate A. URS/CWC has begun preparing, securing, establishing, and/or conducting the required plans, permits,

schedules, measures, and facilities under the approved Work Plan. Express Services personnel have begun cleaning of the concrete lego blocks in the Coverall buildings.

Asarco's consultant, (ARCADIS), continued to draft the report on the historic recordation of buildings scheduled for cleaning and demolition provided in the approved Work Plan. Engineering drawings are being digitized and archival quality photographs of the buildings are being developed to be included in the historic recordation report.

The following deliverables are being prepared:

1. Plan Map of the Facility
2. Photorecordation and Photo Log
3. Drawings and Plans
4. Updated CRIS Forms
5. Final Report
6. Video of the Stack Demolition

On June 4, 2009, Asarco submitted the 2009 end of fieldwork summary report prepared by ARCADIS that documented the historic recordation of structures identified for demolition in the Work Plan. Once reviewed, SHPO concurrence and EPA approval for commencement of the cleaning and demolition activities are anticipated.

Work continued on the video recordation in preparation of the demolition of the Blast Furnace Stack, the Acid Plant Stack, and the Sinter Stack. On June 15, 2009, Asarco submitted the video treatment prepared by ARCADIS that represents the general plan for development of the finished stack demolition video productions. We await comments to this submittal. The video production company conducted an interview with a national expert on smelters to provide background commentary for the documentary. The recordation efforts will be coordinated with the URS/CWC's demolition subcontractor in July to facilitate communications.

Phase 2 RCRA Facility Investigation (RFI) Characterization and Risk Assessment Work Plan

In a May 29, 2009 letter, EPA informed Asarco that the ecological risk assessment (ERA) work would be segregated from the remaining RFI Phase 2 Risk Assessment and Characterization Work Plan. EPA further advised Asarco that the remaining comments on the human health risk assessment protocols, data collection needs, and remaining Phase 2 RFI work plan components would be forthcoming in the next two weeks. On June 9, 2009, Asarco, EPA, EPA's contractor, the Montana Department of Environmental Quality, and the U.S. Fish and Wildlife Services representatives participated in a conference call to discuss

the EPA's May 29, 2009 Ecological Risk Assessment (ERA) comments on the Asarco's RCRA RFI Characterization and Risk Assessment technical memorandum.

In a June 9, 2009 letter, EPA clarified the ERA deliverables and set forth a June 29, 2009 submittal date for the ERA Work Plan. On June 29, 2009, Asarco submitted to the agencies by electronic mail the Baseline Ecological Risk Assessment (BERA) Work Plan. On June 30, 2009, hard copies of the BERA Work Plan were simultaneously mailed to EPA and hand-delivered to the Montana Department of Environmental Quality and U.S. Fish and Wildlife Services. On July 1, 2009, Asarco submitted to the agencies a response to comments matrix for the BERA. EPA has committed to expeditiously review and approve the BERA Work Plan.

Interim Measures

In late May 2009, Asarco provided EPA with sampling and analysis from selected groundwater monitoring wells and Prickly Pear Creek, an evaluation of the data, and a proposal for constructing ten new monitoring wells and incorporating two existing irrigation wells into the 2009 Supplemental Groundwater Investigation Work Plan. In a May 29, 2009 conference call, EPA, and State of Montana Source Water Protection Program representatives reviewed and approved the general location of 10 new groundwater monitoring wells. On June 1, 2009, Asarco provide EPA with a final proposal for construction of new monitoring wells sites and sampling of a surface water monitoring location. On June 1, 2009, EPA approved Asarco's proposal.

The construction of the 10 new monitoring wells commenced on June 1, 2009. The construction and development of the new groundwater wells located on Asarco property was completed by June 4, 2009. Randy Breeden, EPA Hydrogeologist, observed construction of several of these monitoring wells. Four of the 10 new groundwater monitoring wells are located on non-owned Asarco property. Three of the new groundwater monitoring wells are located on property owned by Helena Sand and Gravel while the fourth is located on property owned by John Simac. Access agreements were required prior to construction of these groundwater monitoring wells. The inability to immediately secure these access agreements temporarily delayed construction of these four groundwater monitoring wells. On June 9, 2009 and June 11, 2009, Asarco acquired the necessary access agreements. Copies of the agreements are attached to this monthly progress report. Shortly thereafter, construction of the remaining groundwater monitoring wells resumed.

Environmental West Exploration, Inc. conducted the drilling, well construction, and well development for ten monitoring wells (EH-128 through EH-137). Drilling was conducted using Tubex technology, an air rotary drilling method with 10 and 5 foot threaded casing, which allows for frequent soil sampling. Water was not used during drilling of any of the wells installed in

June 2009. Grab soil samples were collected from drill cuttings for lithologic logs. When grab samples did not provide quality samples split spoon samples were collected to better describe the lithology of the soils. The detailed lithologic logs and well completion details were recorded by Hydrometrics personnel and are summarized in the attached well logs. The wells development was conducted by surging the wells with a weighted bailer then bailing sediment out of the well, the wells were then pumped at approximately 3-5 gpm using a grundfaus submersible pump until at least 5 bore-volumes were removed.

Following completion and development of the new wells, each well was surveyed into the monitoring network and sampled for rush analysis of dissolved arsenic and selenium. The sampling event also included the wells that were installed in April of 2009 (EH-123 through -127). Groundwater sampling was conducted from June 23 through 25, 2009. Samples were submitted to Energy Laboratories for rush analyses. With the exception of wells EH-132 and EH-128, all of the wells installed in June 2009 were below groundwater MCL's. It should be noted that all of the wells north of Prickly Pear Creek contained selenium and arsenic concentrations that were below the detection limit. Groundwater monitoring wells EH-132 and EH-128 (in the SW corner of Lamping Field) contained selenium concentrations of less than 1 ppb, however dissolved arsenic concentrations were 30 ppb and 34 ppb, respectively. The results of the June 2009 sampling are summarized in the *June 2009 Groundwater Monitoring Results*, Table and *June 2009 Water Quality Results*, Figure 1, which are attached to this monthly progress report. Energy Laboratories will perform additional analyses on the samples that include Ca, Mg, Na, K, Cu, Cd, Pb, Fe, Mn and Zn.

In addition to the water quality results, Hydrometrics compiled the water level data from the June 2009 monitoring on the *June 2009 Potentiometric Map*, Figure 2, which is attached to this monthly progress report. The potentiometric map shows that groundwater continues to generally flow parallel to Prickly Pear Creek in the northeastern portion of Lamping Field and the properties to the north (Simac and Helena Sand and Gravel). On the western/southwestern portion of the field, groundwater flows to the northeast as it enters the Helena Valley from the south hills. The well logs from EH-128 through EH-137 are attached to the monthly progress report.

Corrective Action Management Unit (CAMU)

During June 2009, Asarco personnel continued to perform weekly inspections of the cell liner and surrounding areas to check for tears, sandbag placement, anchor trench pullout, and fence conditions. Hydrometrics personnel continued to monitor and pump the leachate collection system as weather permitted. Approximately 4100 gallons of leachate was pumped from the leachate collection system in April. The leak detection sump continues to have zero flow, although a small amount of water (approximately 6 gallons) was present in the bottom of the sump, which was pumped out.

RI/FS Long-Term Monitoring Program

On May 29, 2009, Asarco, EPA, and State of Montana Source Water Protection Program representatives participated in a conference call to discuss the Montana Department of Environmental Quality Public Water Supply and Subdivision Bureau and Source Water Protection Program's May 27, 2009 letter. Based on this discussion, Asarco agreed to sample the 15 public water supply systems listed in Table 1 of the May 27, 2009 letter. On June 10 and 16, 2009, 21 individual wells, representing thirteen 13 public water supply systems were sampled. The owner of the Prairie Mobile Village public water supply system refused well access and the owner of the Phoenix Park public water supply system did not return three telephone messages requesting access. The analytical results from these sampling events have not been received from Energy Laboratory.

On June 5, 2009, Asarco conducted the monthly sampling of select residential groundwater wells, as prescribed in the 2009 Groundwater and Surface Water Sampling and Monitoring Plan (May 2009). The drinking water well located at 2489 Wylie Drive was sampled at the request of the owner. Copies of the final set of May 2009 and the complete set of June 2009 residential well notification letters, along with the respective laboratory analytical reports are attached to this monthly progress report.

A summary of the correspondence transmitted as part of the East Helena Consent Decree in June 2009 is included in Attachment 1.

- b. Identify any requirements under the Part VII of the Decree that were not completed in a timely manner, and problems or anticipated problem areas affecting compliance with the Decree;**

The inability to immediately secure construction access agreements for the new groundwater monitoring wells located on non-Asarco owned property and delays in the delivery of Culligan's distilled water temporarily postponed the scheduled sampling of the new groundwater monitoring wells. There were no requirements that were not completed in a timely manner nor were there problems or anticipated problem areas that may affect compliance with the Decree.

- c. Describe projects completed during the prior month, as well as activities scheduled for the next month;**

In accordance with the 1) 2006 Interim Measures Work Plan Addendum, Final Cleaning, Soil Sampling, Backfilling, and Interim Cap Work Plan and 2) 2006 Interim Measures Work Plan Addendum, Former Acid Plant Sediment Drying Area Slurry Wall, Monitoring, Operation, and Maintenance Work Plan, four areas in which interim caps have been installed are being inspected on a monthly basis. In December 2008, these monthly inspections were expanded to include areas in which above grade demolition activities were conducted under the 1) 2008

Interim Measures Work Plan and 2) 2008 Cleaning and Demolition Project Work Plan, with the most recent inspections occurring on June 4, 2009.

CAMU Landfill - In accordance with the July 2000 CAMU Design Analysis Report (Operation and Maintenance Plan), the CAMU is being inspected monthly with the last inspection occurring on June 2, 2009. The inspections of the CAMU Phase 2 cell temporary cover are being conducted on a weekly schedule. These monthly and weekly inspections documented that the CAMU Phase 1 and Phase 2 cell are operating as designed.

During July 2009, URS/CWC will complete the prescribed plans, permits, schedules, precautions, measures, and/or meetings set forth in approved 2009 cleaning and demolition work plan. A kick-off meeting is scheduled on July 9, 2009 to introduce the demolition contractors/subcontractors to the regulatory agencies and review the components of the Work Plan. IRS Environmental Services (URS/CWC subcontractor) is scheduled to mobilize around July 6, 2009 to begin the cleaning prescribed in the work plan. The URS/CWC demolition equipment and operators are scheduled to mobilize around July 13, 2009 and July 20, 2009, respectively. Express Services personnel will continue with the tasks set forth in the Work Plan's Additive Alternate A

During July 2009, slug test on the new groundwater monitoring wells will be performed. The data from the 2009 Supplemental Groundwater Investigations is scheduled to be summarized in a brief report. Asarco's consultants will continue with the development of risk assessment and the Phase II RFI Supplemental Site Characterization Work Plan.

d. Describe and estimate the percentage of studies completed;

The Pump and Treat Pilot Scale Testing for Source Area Reduction of Groundwater Contamination is approximately 100% complete.

The jar testing (Phase I) of the East Helena PRB Materials Testing Program is 100% complete.

The slurry wall construction in the former acid plant sediment drying area is 100% complete. On July 24, 2008, Asarco submitted to EPA the Addendum to Interim Measures Work Plan, Former Acid Plant Sediment Drying Wall, Monitoring, Operations, and Maintenance Report, Asarco East Helena Facility.

The interim capping project for the former acid plant sediment drying area, dross area, sinter plant area, gas cleaning section of the acid plant, thaw house, contact section of the acid plant, blast furnace baghouse, blast furnace flue, and Monier flue is 100% complete.

The revised January 2008 CAMU Phase 2 Cell Design Analyses is 100% complete, the CAMU Phase 2 Cell financial assurance is fully funded, and

construction and 2008 waste placement within the CAMU Phase 2 cell is 100% complete.

The slurry wall construction in the former speiss-dross plant area is 100% complete. On September 18, 2008, Asarco submitted to EPA the Addendum to Interim Measures Work Plan, Speiss-Dross Area Slurry Wall, Monitoring, Operations, and Maintenance Report, Asarco East Helena Facility.

Asarco completed the historic recordation tasks associated with the 2008 Cleaning and Demolition Work Plan. On September 23 and 30, 2008, the Phase 1 Historic Recordation Reports were submitted to EPA.

The obligations contained in the 2008 Interim Measures Work Plan Addendum, Blast Furnace Flue and Monier Flue Cleaning and Demolition and Demolition Footprint Exposed Areas Soil Sampling are 100% complete. On February 20, 2009, the findings from this completed work plan were submitted to EPA in a Summary Report.

Asarco completed the 2008 construction activities associated with the CAMU Phase 2 Cell. On January 30, 2009, the CAMU Phase 2 Cell, 2008 Construction Report was submitted to EPA.

Asarco (through ARCADIS) completed the historic recordation of buildings scheduled for cleaning and demolition prescribed in the 2009 Cleaning and Demolition Work Plan.

Asarco submitted the Baseline Ecological Risk Assessment Work Plan (June 2009) to EPA, the Montana Department of Environmental Quality and U.S. Fish Wildlife Service.

e. Describe and summarize all findings to date;

The details of past findings through May are described and summarized in previous monthly progress reports.

f. Describe actions being taken to address problems;

There were no other actions required to address problems associated with the Decree.

g. Identify changes in key personnel during the period;

There were no changes in key personnel during the period. Asarco continues to use the services of Hydrometrics Incorporated to perform the various activities required under the Consent Decree.

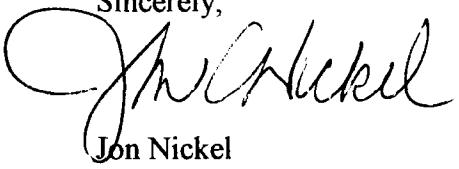
- h. **Include copies of the results of sampling and tests conducted and other data generated pursuant to work performed under Part VII of the Decree since the last Progress Report. Asarco may submit data that has been validated and confirmed by Asarco to supplement any prior submitted data. Updated validated and confirmed data shall be included with the RFI Report, if not delivered before;**

Two validation packages entitled "*Validation Summary, Asarco East Helena Post RI/FS Long-Term Monitoring Project, East Helena Residential Groundwater, Inorganic Analyses, May 2009 Sample Event*" and "*Validation Summary, Asarco East Helena Post RI/FS Long-Term Monitoring Project, East Helena Residential Groundwater, Inorganic Analyses, June 2009 Sample Event*" are attached to this monthly progress report.

- i. **Describe the status of financial assurance mechanisms, including whether any changes have occurred, or are expected to occur which might affect them, and the status of efforts to bring such mechanisms back into compliance with the requirements of this Decree.**

ASARCO filed a voluntary petition for relief under chapter 11 of Title 11 of the United States Bankruptcy Code in the Southern District of Texas on August 9, 2005. ASARCO hopes to use its chapter 11 bankruptcy proceeding to improve its financial position to the point where it can successfully reorganize and emerge from bankruptcy. ASARCO further hopes that at that time it will be in a position to make the required financial assurance demonstration. Asarco has established the necessary CAMU Phase 2 Cell financial assurance and has provided EPA with the complete executed original of the CAMU Trust Fund Agreement.

Sincerely,

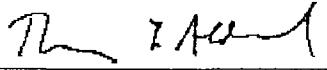


A handwritten signature in black ink, appearing to read "Jon Nickel".

Jon Nickel

CERTIFICATION
PURSUANT TO U.S. v ASARCO INCORPORATED
(CV-98-3-H-CCL, USDC, D. Montana)

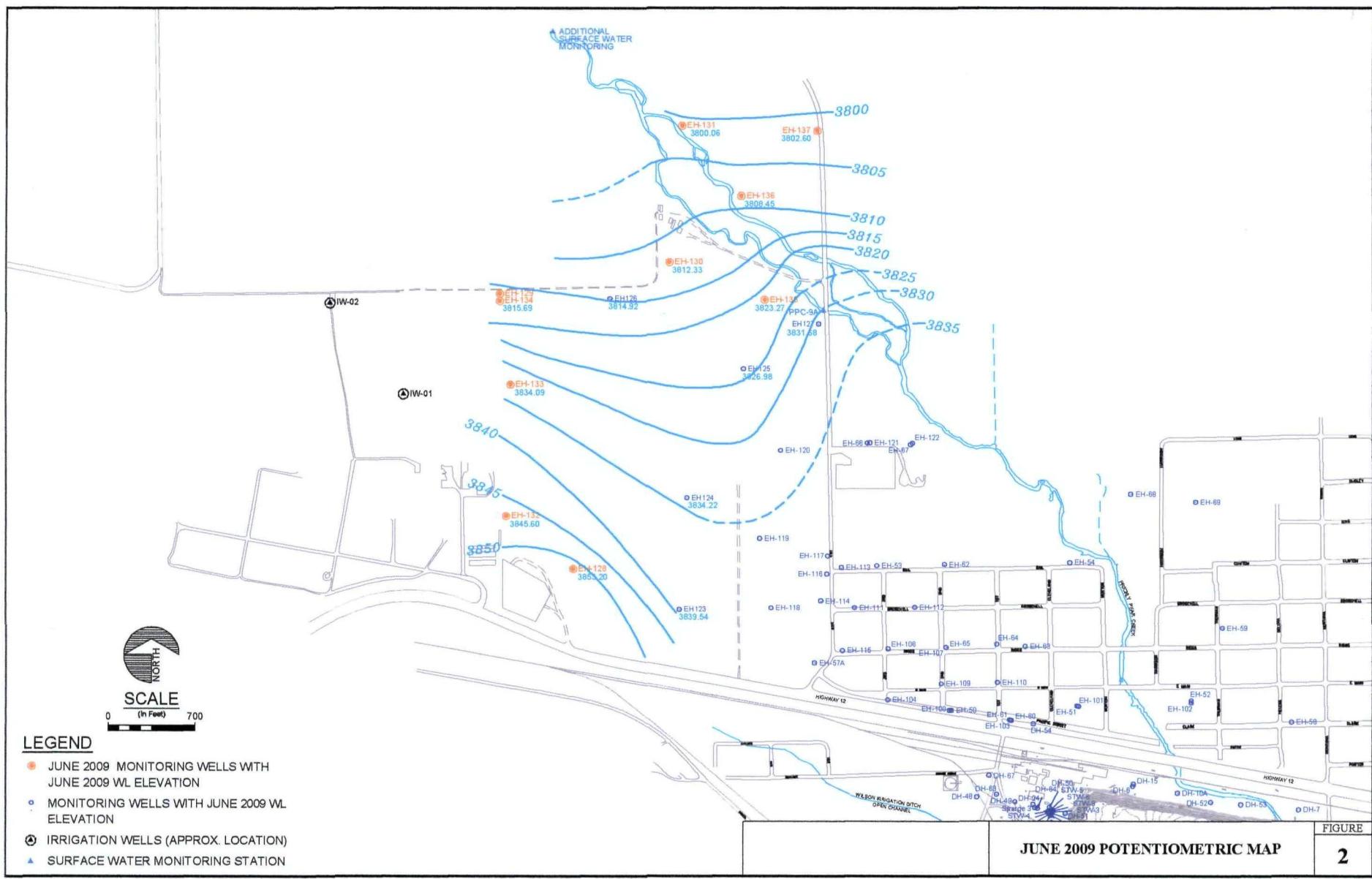
I certify under penalty of law that this document, June 2009 Progress Report and all attachments, were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Signature 
Name: Thomas L. Aldrich
Title: Vice President Environmental Affairs
Date: July 8, 2009

CONSENT DECREE
EAST HELENA SITE
JUNE 2009 PROGRESS REPORT
SUMMARY OF CORRESPONDENCE
ATTACHMENT 1

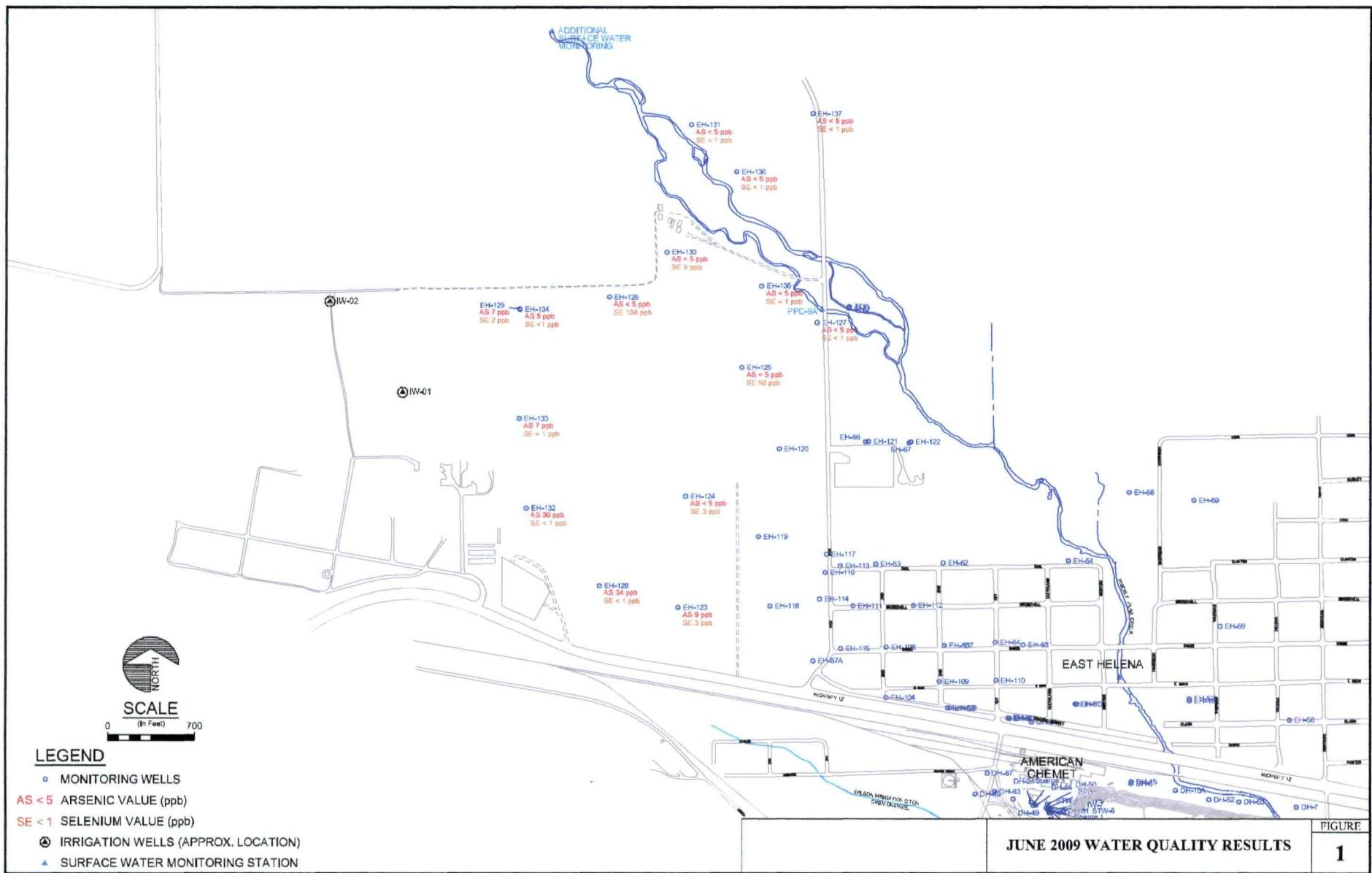
DATE OF TRANSMITTAL	CORRESPONDENCE SENT FROM	CORRESPONDENCE SENT TO	SUBJECT	RESPONSE
June 9, 2009	Jon Nickel	Linda Jacobson	Updated 2009 Groundwater Supplemental Investigations Costs	No Formal Response Required
June 4, 2009	Jon Nickel	Iver Johnson and Linda Jacobson	2009 End of Year Recordation Field Work Report	Written Approval from EPA Required
June 15, 2009	Jon Nickel	Iver Johnson and Linda Jacobson	Video Treatment	No Formal Response Required
June 29, 2009 June 30, 2009	Jon Nickel	Linda Jacobson	Baseline Ecological Risk Assessment (BERA) Work Plan	Written Approval from EPA Required
July 1, 2009	Jon Nickel	Linda Jacobson	Comment Response Matrix for BERA	No Formal Response Required
Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	Monitoring Well Access Agreements	No Formal Response Required
Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	June 2009 Monitoring Well Sample Results Summary Table, Sample Results Figure, and Potentiometric Map	No Formal Response Required

Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	Validation Summary, Asarco East Helena Post RI/FS Long- Term Monitoring Program, East Helena Residential Groundwater, Inorganic Analyses, May and June 2009 Sample Events	No Formal Response Required
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June 2009 Groundwater Monitoring Results

Site	Sample #	Date	Diss. As (ppb)	Diss. Se (ppb)
EH-123	AEH-0906-100	6/23/2009	9	3
EH-124	AEH-0906-101	6/23/2009	< 5	3
EH-125	AEH-0906-102	6/23/2009	< 5	92
EH-127	AEH-0906-103	6/23/2009	< 5	< 1
EH-127 DUP	AEH-0906-104	6/23/2009	< 5	< 1
EH-126	AEH-0906-105	6/23/2009	5	104
DI BLANK	AEH-0906-106	6/23/2009	< 5	< 1
RINSATE BLANK	AEH-0906-107	6/23/2009	< 5	< 1
EH-136	AEH-0906-108	6/24/2009	< 5	< 1
EH-131	AEH-0906-109	6/24/2009	< 5	< 1
EH-137	AEH-0906-110	6/24/2009	< 5	< 1
DI BLANK	AEH-0906-111	6/24/2009	< 5	< 1
RINSATE BLANK	AEH-0906-112	6/24/2009	< 5	< 1
EH-130	AEH-0906-113	6/24/2009	< 5	9
EH-135	AEH-0906-114	6/24/2009	< 5	< 1
EH-135 DUP	AEH-0906-115	6/24/2009	< 5	< 1
EH-129	AEH-0906-116	6/24/2009	7	2
EH-134	AEH-0906-117	6/24/2009	5	< 1
EH-133	AEH-0906-118	6/25/2009	7	< 1
DI BLANK	AEH-0906-119	6/25/2009	< 5	< 1
RINSATE BLANK	AEH-0906-120	6/25/2009	< 5	< 1
EH-132	AEH-0906-121	6/25/2009	30	< 1
EH-128	AEH-0906-122	6/25/2009	34	< 1
EH-128 DUP	AEH-0906-123	6/25/2009	35	< 1



Hydrometrics, Inc.

Consulting Scientists and Engineers
Helena, Montana

Monitor Well Log

Hole Name: EH-128

Date Hole Started: 6/3/09 Date Hole Finished: 6/3/09

Client: ASARCO LLC
Project: Interim Measures East Helena Facility
County: Lewis and Clark State: Montana
Property Owner: ASARCO LLC
Legal Description: T10N R3W S26
Location Description:

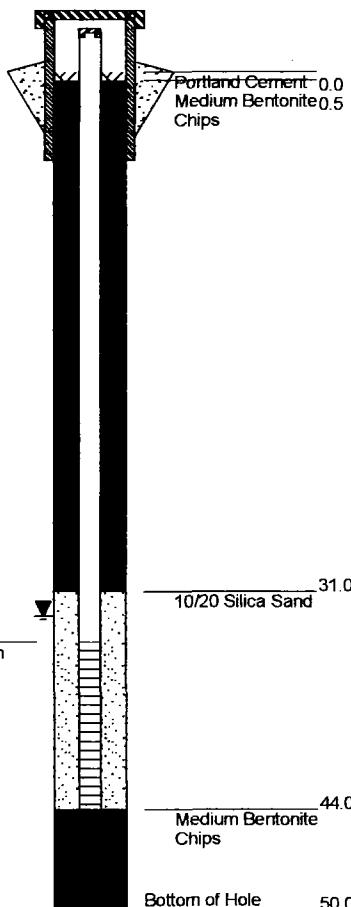
Recorded By: Greg Bryce
Drilling Company: Environmental West
Driller: Ron Sink
Drilling Method: Tubex
Drilling Fluids Used: Air
Purpose of Hole: Monitoring Well
Target Aquifer: Intermediate Alluvium
Hole Diameter (in): 6
Total Depth Drilled (ft): 50

WELL COMPLETION	Y/N	DESCRIPTION	INTERVAL
Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 44
Surface Casing Used?	Y	6-inch steel	+2.5 - 2.5
Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	34 - 44'
Sand Pack?	Y	10/20 Silica Sand	31 - 44'
Annular Seal?	Y	Bentonite Chips	0.5 - 31'
Surface Seal?	Y	Portland Cement	+0.5 - 0.5
<u>DEVELOPMENT/SAMPLING</u>			
Well Developed?	Y	Surge/Bail/Pump	
Water Samples Taken?	Y	Long-term Monitoring	
Boring Samples Taken?	Y	Grab	Continuous
Northing: 13560.13		Easting: 4097.23	
Static Water Level Below MP: 35.14		Surface Casing Height (ft):	
Date: 6/25/09		Riser Height (ft): 2.67	
MP Description: Top of PVC		Ground Surface Elevation (ft): 3885.67	
MP Height Above or Below Ground (ft): 2.67		MP Elevation (ft): 3888.34	

Remarks:

WELL CONSTRUCTION

STANDARD_REV3 K:\GINT\PROJECTS\1054.GPJ HYDHLN2.GDT 7/7/09



GRAPHICS

GEOLOGICAL DESCRIPTION

0.0 - 1.0' Topsoil	Silt and fine grained sand with roots. Moist.
1.0 - 5.0' Silt	Soft silt, with 1 - 2% fine, subrounded gravel. Dry.
5.0 - 14.0' Gravelly Silt	Same as above with 5 - 7% gravels. Slightly Moist.
14.0 - 17.0' Sandy Silt	Tan, soft silt, with 10% fine - coarse grained sand. Slightly Moist.
17.0 - 22.0' Gravelly Sand	Light brown, poorly sorted, fine - coarse grained, subangular - subrounded sand, with 10% fine, subangular - subrounded gravel. Slightly Moist.
22.0 - 26.0' Gravelly Sand	Reddish brown, poorly sorted, subangular to subrounded, fine - coarse grained sand, with 10 - 15% fine subangular - subrounded gravel. Slightly Moist.
26.0 - 28.0' Gravelly Sand	Same as above with 20 - 30% fine - coarse gravel. Slightly Moist.
28.0 - 36.0' Sandy Gravel	Gray/tan, fine - coarse (coarse broken by drilling), subangular - subrounded gravel with 30 - 35% fine - coarse (less fine) grained sand. Slightly Moist.
36.0 - 40.0' Sandy Silt	Soft, moderately plastic silt, with 10 - 15% fine - medium grained sand. Damp.
40.0 - 43.0' Silty Gravelly Sand	Reddish brown, poorly sorted, subrounded - rounded, fine - coarse grained sand, with 5 - 7% subrounded fine gravel with <5% silt. Damp.
43.0 - 44.0' Gravelly Sand	Same as above with 15 - 20% gravel and no silt. Damp.
44.0 - 50.0' Volcanic Ash	Gray/tan with black inclusions, fine grained ash. Slightly Moist.
50.0 - 50.0' Silt	Brown silt. Slightly Moist.

Hydrometrics, Inc. 
 Consulting Scientists and Engineers
 Helena, Montana

Monitor Well Log

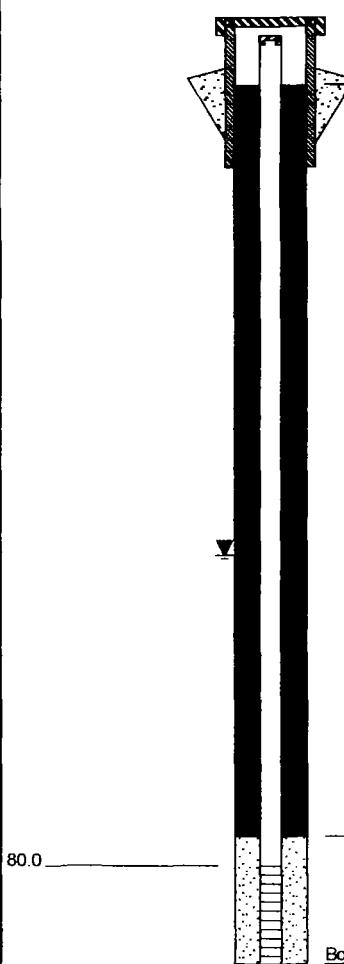
Hole Name: EH-129

Date Hole Started: 6/1/09 Date Hole Finished: 6/1/09

Client: ASARCO LLC Project: Interim Measures East Helena Facility County: Lewis and Clark State: Montana Property Owner: ASARCO LLC Legal Description: T10N R3W S26 Location Description: Recorded By: Greg Bryce Drilling Company: Environmental West Driller: Ron Sink Drilling Method: Tubex Drilling Fluids Used: Air Purpose of Hole: Monitoring Well Target Aquifer: Hole Diameter (in): 6 Total Depth Drilled (ft): 90	<u>WELL COMPLETION</u>		
	Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC
	Surface Casing Used?	Y	6" Steel
	Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC
	Sand Pack?	Y	10/20 Silica Sand
	Annular Seal?	Y	Bentonite Chips
	Surface Seal?	Y	Portland Cement
	<u>DEVELOPMENT/SAMPLING</u>		
	Well Developed?	Y	Surge/Bail/Pump
	Water Samples Taken?	Y	Long-term Monitoring
	Boring Samples Taken?	Y	Grab Continuous
Northing: 15798.55		Easting: 3451.67	
Static Water Level Below MP:		51.18	Surface Casing Height (ft):
Date: 6/24/09			Riser Height (ft): 2.76
MP Description: Top of PVC			Ground Surface Elevation (ft): 3863.63
MP Height Above or Below Ground (ft):		2.76	MP Elevation (ft): 3866.39

Remarks:

WELL CONSTRUCTION



GRAPHICS

GEOLOGICAL DESCRIPTION

0.0 - 5.0'	Gravelly Sand Tan, 80% poorly sorted, fine - coarse grained sand with 20% fine - coarse subangular to subrounded gravel. Dry.
5.0 - 11.0'	Sandy Clay Brown, moderately plastic clay with 5 - 10% fine - coarse sand. Dry.
11.0 - 17.0'	Sandy Silt Tan, nonplastic silt with 30 - 35% fine to medium grained sand, trace clay. Moist.
17.0 - 24.0'	Gravelly Sand Brown, 80% poorly sorted fine - coarse grained sand with 20% fine subrounded to rounded gravel, trace coarse gravel. Moist.
24.0 - 27.0'	Sandy Gravel Black/brown, rounded - subrounded (broken chips from drilling), fine - coarse basalt gravel with 20% poorly sorted, fine - coarse grained sand. Dry.
29.0 - 32.0'	Sandy Gravel Black/brown subrounded/subangular, fine - coarse gravel with 20% medium coarse sand, possible cobbles, hard drilling, dry.
32.0 - 35.0'	Gravelly Sand Tan, poorly sorted fine - coarse grained subrounded to rounded sand, with 20% fine - coarse subrounded gravel. Slightly Moist.
35.0 - 37.0'	Gravelly Sand As above with 60% sand and 40% gravel. Slightly Moist.
37.0 - 42.0'	Clay High plasticity clay, with trace silt. Damp.
42.0 - 50.0'	Sandy Clay Moderate plasticity clay, with 10% fine - coarse grained sand. Moist.
50.0 - 52.0'	Silty Sand Brown, well sorted, fine grained sand, with 5 - 10% silt. Moist.
52.0 - 53.0'	Clayey Sand Brown, well sorted, fine grained sand, with 10 - 15% clay.
53.0 - 54.0'	Gravelly Sand Brown, poorly sorted, fine - coarse grained sand (coarse sand rounded), with 10% fine - coarse subrounded to rounded gravel, and trace silt. Damp.
54.0 - 55.0'	Silty Sand Tan, well sorted fine grained sand, trace medium - coarse sand with 5 - 10% silt, damp.
55.0 - 58.0'	Silty Clayey Sand Tan, moderately sorted, medium - fine grained sand with 30% silts and clays, saturated.
58.0 - 65.0'	Silty Sand Moderately sorted, fine grained sand with 10% medium grained sand, with 20% silt, damp but not producing water.
65.0 - 80.0'	Silt Tan, dense, nonplastic silt with trace fine sand. Moist.
80.0 - 90.0'	Siltstone Highly indurated Siltstone. Wet.

Hydrometrics, Inc. 
 Consulting Scientists and Engineers
 Helena, Montana

Monitor Well Log

Hole Name: EH-130

Date Hole Started: 6/11/09 Date Hole Finished: 6/11/09

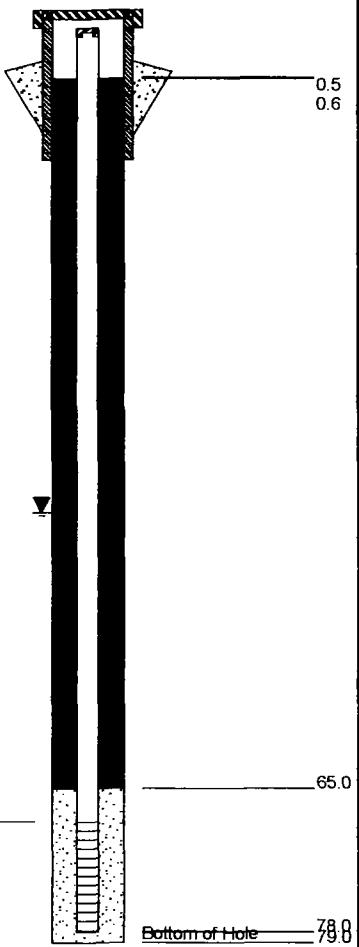
Client: ASARCO LLC
 Project: Interim Measures East Helena Facility
 County: Lewis and Clark State: Montana
 Property Owner: ASARCO LLC
 Legal Description: T10N R3W S25
 Location Description:

Recorded By: Greg Bryce
 Drilling Company: Environmental West
 Driller: Ron Sink
 Drilling Method: Tubex
 Drilling Fluids Used: Air
 Purpose of Hole: Monitoring Well Installation
 Target Aquifer: Intermediate Alluvium
 Hole Diameter (in): 6
 Total Depth Drilled (ft): 79

	WELL COMPLETION	Y/N	DESCRIPTION	INTERVAL
Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 78	
Surface Casing Used?	Y	6-inch steel	+2.5 - 2.5	
Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	68 - 78	
Sand Pack?	Y	10/20 Silica Sand	65 - 78	
Annular Seal?	Y	Bentonite Chips	0.5 - 65	
Surface Seal?	Y	Portland Cement	+0.5 - 0.5	
	DEVELOPMENT/SAMPLING			
Well Developed?	Y	Surge/Bail/Pump		
Water Samples Taken?	Y	Long-term Monitoring		
Boring Samples Taken?	Y	Grab	Continuous	
Northing:	16255.46	Easting:	4638.18	
Static Water Level Below MP:	42.50	Surface Casing Height (ft):		
Date:	6/24/09	Riser Height (ft):	2.57	
MP Description:	Top of PVC	Ground Surface Elevation (ft):	3852.26	
MP Height Above or Below Ground (ft):	2.57	MP Elevation (ft):	3854.83	

Remarks:

WELL CONSTRUCTION



GEOLOGICAL DESCRIPTION

DEPTH (ft)	DESCRIPTION
0.0 - 2.0'	Topsoil Brown, silt. Moist.
2.0 - 6.0'	Gravelly Silt Light brown, nonplastic silt, with 10% fine, subangular to subrounded gravel. Dry.
6.0 - 10.0'	Gravelly Sand Light brown, poorly sorted, subangular - subrounded, fine - coarse grained sand, with 15% fine, subangular - subrounded gravel. Dry.
10.0 - 13.0'	Gravelly Sand As above with 30% gravel. Dry.
13.0 - 17.0'	Sandy Gravel and Cobbles Tan/dark gray, fine - coarse, subangular to subrounded gravel and cobbles, with interbedded, medium - coarse grained sand between cobbles, hard drilling. Dry.
17.0 - 20.0'	Gravelly Sand Dark brown, poorly sorted, fine - coarse grained sand, with 20 - 25% fine, subangular - subrounded gravel (trace coarse gravel). Moist.
20.0 - 28.0'	Gravelly Sand As above with 30 - 35% fine - coarse gravel. Moist.
28.0 - 33.0'	Gravelly Sand Reddish brown, poorly sorted, fine - coarse grained sand, with 5% fine, subrounded gravel. Moist.
33.0 - 43.0'	Gravelly Sand As above with 3 - 5% silt. Damp.
43.0 - 49.0'	Silty Sand Reddish brown, poorly sorted, fine - coarse grained sand, with 10 - 20% nonplastic silt. Saturated.
49.0 - 54.0'	Sandy Clay Light brown, soft nonplastic clay, with 15% fine - coarse, mostly fine grained sand, and trace fine gravel. Saturated.
54.0 - 59.0'	Sandy Clay Light brown, soft clay, with 35 - 40% fine - medium grained sand. Saturated.
59.0 - 61.0'	Sandy Clay As above, with 20% fine - medium grained sand. Saturated.
61.0 - 66.0'	Sandy Clay Brown, soft, moderately plastic clay, with 5 - 10% fine grained sand, less sand with depth. Saturated at 61 - approximately 63', damp 63 - 66.
66.0 - 68.0'	Gravelly Silty Sand Brown, poorly sorted, fine - coarse grained sand with 30% fine - coarse, subrounded - rounded gravel and 5 - 10% silt, damp.
68.0 - 70.0'	Gravelly Silty Sand As above, Saturated
70.0 - 78.0'	Sandy Silty Gravel Dark gray, fine - coarse, subangular - subrounded gravel with 25% medium - coarse grained

WELL CONSTRUCTION

GRAPHICS

GEOLOGICAL DESCRIPTION

Sand and 5 - 10% silt. Saturated - making >10 gpm.

78.0 - 79.0' **Ash Unit**

Reworked ash: tan/pink, silt texture with white/black inclusions.

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 Helena, Montana

Monitor Well Log

Hole Name: EH-131

Date Hole Started: 6/10/09 Date Hole Finished: 6/10/09

Client: ASARCO LLC
 Project: Interim Measures East Helena Facility
 County: Lewis and Clark State: Montana
 Property Owner: ASARCO LLC
 Legal Description: T10N R3W S25
 Location Description:

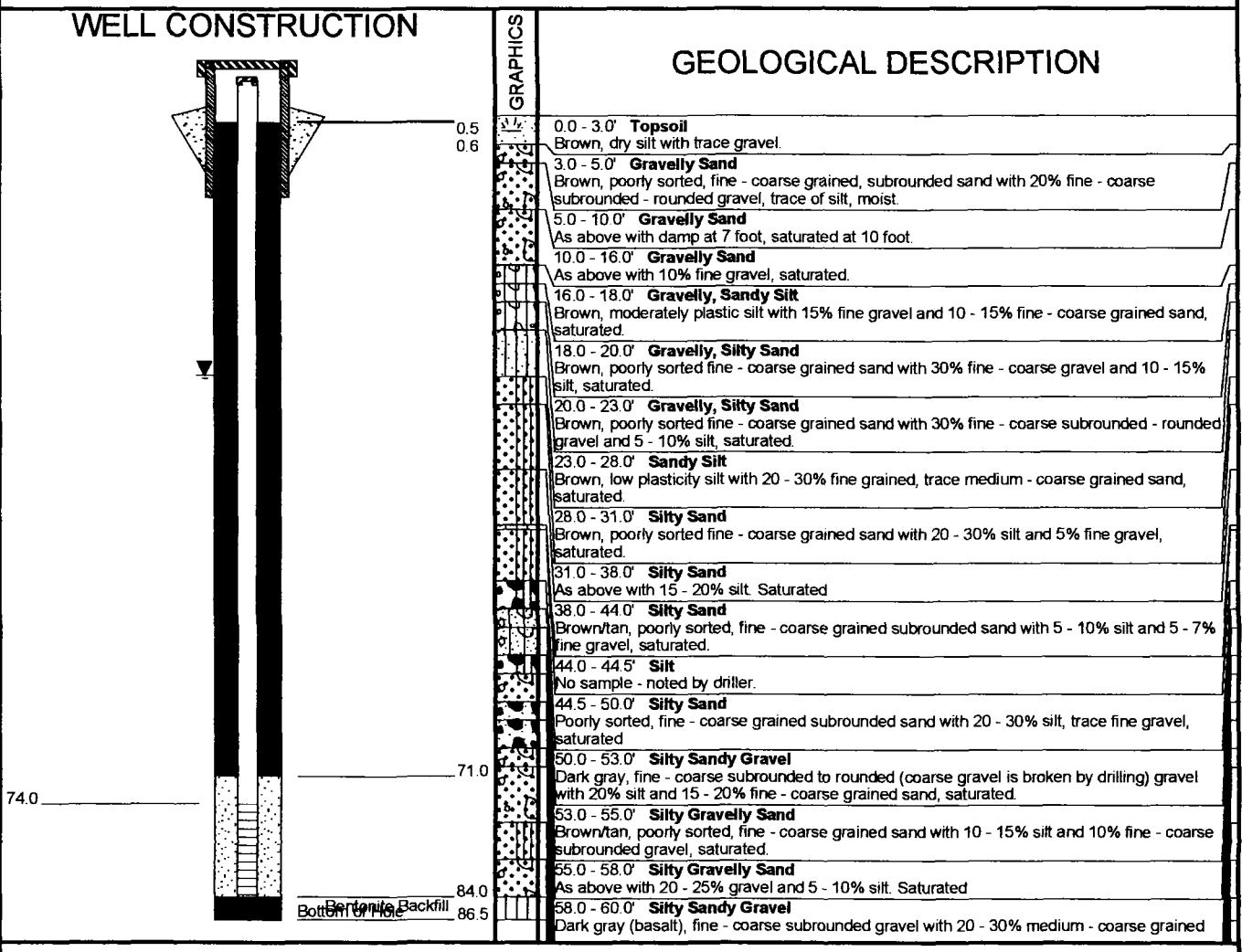
Recorded By: Greg Bryce
 Drilling Company: Environmental West
 Driller: Ron Sink
 Drilling Method: Tubex
 Drilling Fluids Used: Air
 Purpose of Hole: Monitoring Well Installation
 Target Aquifer: Intermediate Alluvium
 Hole Diameter (in): 6
 Total Depth Drilled (ft): 86.5

WELL COMPLETION	Y/N	DESCRIPTION	INTERVAL
Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 84'
Surface Casing Used?	Y	6-inch steel	+2.5 - 2.5
Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	74 - 84
Sand Pack?	Y	10/20 Silica Sand	71 - 84
Annular Seal?	Y	Bentonite Chips	0.5 - 71
Surface Seal?	Y	Portland Cement	+0.5 - 0.5
DEVELOPMENT/SAMPLING			
Well Developed?	Y	Surge/Bail/Pump	
Water Samples Taken?	Y	Long-term Monitoring	
Boring Samples Taken?	Y	Grab	Continuous
Northing: 17287.88	Easting: 4833.57		
Static Water Level Below MP:	30.71	Surface Casing Height (ft):	
Date:	6/24/09	Riser Height (ft):	2.87
MP Description:	Top of PVC	Ground Surface Elevation (ft):	3827.90
MP Height Above or Below Ground (ft):	2.87	MP Elevation (ft):	3830.77

Remarks:

WELL CONSTRUCTION

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 STANDARD_REV3



GEOLOGICAL DESCRIPTION

Continued Next Page

Sheet 1 of 2

WELL CONSTRUCTION

GRAPHICS

GEOLOGICAL DESCRIPTION

sand (trace fine sand), 10 - 15% silt. Saturated
60.0 - 63.0' Gravelly Sand Moderately sorted, medium - coarse (trace fine) grained sand with 10 - 15% fine gravel (trace coarse), saturated.
63.0 - 65.0' Sandy Gravel Dark gray, fine - coarse, subrounded gravel with 20 - 25% medium - coarse grained sand, trace silt. Saturated
65.0 - 68.0' Sandy Gravel As above with 30 - 35% sand. Saturated
68.0 - 70.0' Gravelly Sand Tan, poorly sorted fine - coarse grained sand with 10% fine - coarse subrounded gravel and 5% silt. Saturated
70.0 - 76.0' Gravelly Sand As above with 15 - 20% gravel. Saturated
76.0 - 80.0' Silty Sand Tan, poorly sorted fine - coarse grained sand with 10% silt and <5% gravel. Saturated
80.0 - 84.0' Gravelly Sand Tan, poorly sorted fine - coarse grained sand with 20% fine - coarse subrounded - round gravel and 5% silt. Saturated
84.0 - 86.5' Weathered Ash Ash unit: fine silt texture with white inclusions at depth. Damp

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Monitor Well Log

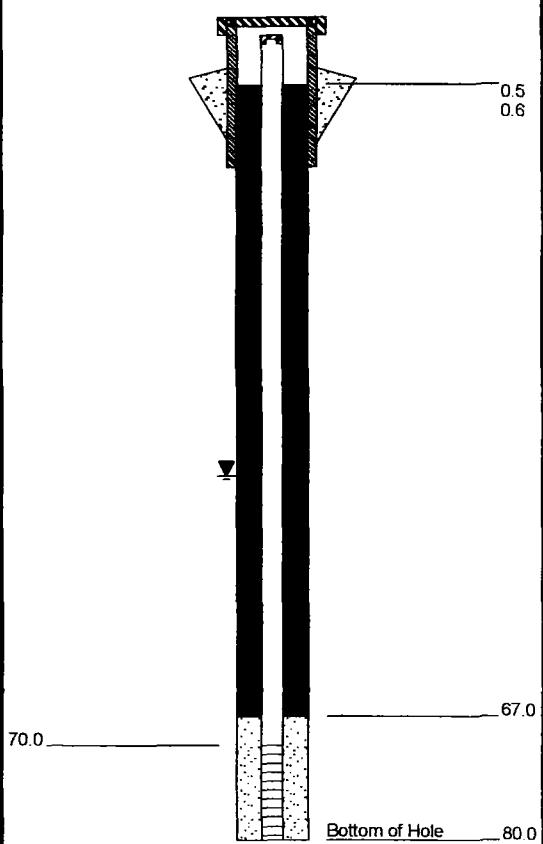
Hole Name: EH-132

Date Hole Started: 6/3/09 Date Hole Finished: 6/3/09

<p>Client: ASARCO LLC Project: Interim Measures East Helena Facility County: Lewis and Clark State: Montana Property Owner: ASARCO LLC Legal Description: T10N R3W S26 Location Description:</p> <p>Recorded By: Greg Bryce Drilling Company: Environmental West Driller: Ron Sink Drilling Method: Tubex Drilling Fluids Used: Air Purpose of Hole: Monitoring Well Target Aquifer: Hole Diameter (in): 6" Total Depth Drilled (ft): 80</p>	<u>WELL COMPLETION</u>	<u>Y/N</u>	<u>DESCRIPTION</u>	<u>INTERVAL</u>
	Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 80
	Surface Casing Used?	Y	6-inch steel	+2.5 - 2.5
	Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	70 - 80'
	Sand Pack?	Y	10/20 Silica Sand	67 - 80'
	Annular Seal?	Y	Bentonite Chips	0.5 - 67'
	Surface Seal?	Y	Portland Cement	+0.5 - 0.5
	<u>DEVELOPMENT/SAMPLING</u>			
	Well Developed?	Y	Surge/bail/pump	
	Water Samples Taken?	Y	Long-term Monitoring	
	Boring Samples Taken?	Y	Grab	Continuous
	Northing: 14187.72		Easting: 3505.47	
	Static Water Level Below MP:	44.19	Surface Casing Height (ft):	
	Date:	6/25/09	Riser Height (ft):	2.49
	MP Description:	Top of PVC	Ground Surface Elevation (ft):	3887.30
	MP Height Above or Below Ground (ft):	2.49	MP Elevation (ft):	3889.79

Remarks:

WELL CONSTRUCTION



GEOLOGICAL DESCRIPTION

GRAPHICS

0.0 - 2.0'	Topsoil Brown, silt with fine - coarse grained sand, trace fine gravel, slightly moist.
2.0 - 12.0'	Gravelly Sandy Silt Tan, nonplastic silt with 30% fine - coarse grained sand and 10% fine gravel, dry.
12.0 - 13.0'	Sandy Gravel Gray, fine - coarse, subangular-subrounded gravel with 20% medium to coarse grained sand, dry.
13.0 - 16.0'	Silty Clay Brown, moderately plastic clay with silt.
16.0 - 24.0'	Gravelly Sand Tan, moderately sorted, mostly fine sand with less medium to coarse grained sand, 15% fine subrounded gravel, slightly moist becoming more moist with depth.
24.0 - 27.0'	Sandy Silt Light brown, silt with 40% fine grained sand, trace of clay, moist.
27.0 - 29.0'	Sand Tan, very well sorted, fine grained sand, Moist (hard drilling).
29.0 - 50.0'	Sandy Clayey Silt Tan, very soft silt with 20% fine grained sand and 10% clay, clay and sand content vary with depth.
50.0 - 61.0'	Sandy Clayey Silt Same as above.
61.0 - 70.0'	Sandy Clayey Silt Same as above with less clay/sand (only 5-10% each), hard drilling.
70.0 - 74.0'	Sandy Silt Same as above with more sand (20%), no clay.
74.0 - 75.0'	Sandy Silt Same as above with some ash inclusions, more moist than above.
75.0 - 76.0'	Silty Sand Tan, moderately sorted, medium grained with some fine and coarse grained sand with 20% silt, saturated (making a little water).
76.0 - 78.0'	Sandy Silt Tan, moderately plastic silt with 20 - 30% fine - coarse grained sand, saturated, making very little water - less with depth.
80.0 - 80.5'	Silt Highly dense silt/clay with white ash inclusions.

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Monitor Well Log

Hole Name: EH-133

Date Hole Started: 6/2/09 Date Hole Finished: 6/2/09

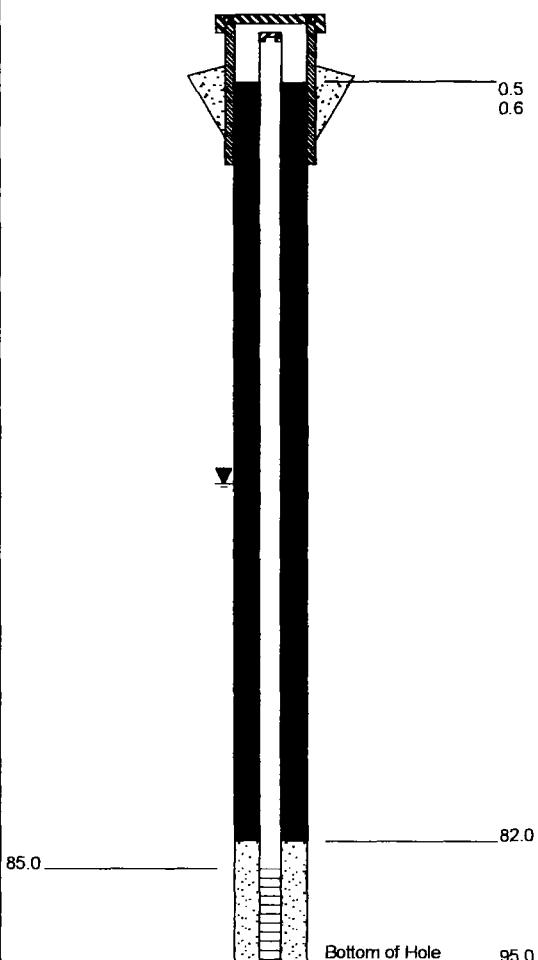
Client: ASARCO LLC
Project: Interim Measures East Helena Facility
County: Lewis and Clark State: Montana
Property Owner: ASARCO LLC
Legal Description: T10N R3W S26
Location Description:

Recorded By: Greg Bryce/Greg Lorenson
Drilling Company: Environmental West
Driller: Ron Sink
Drilling Method: Tubex
Drilling Fluids Used: Air
Purpose of Hole: Monitoring Well
Target Aquifer: Intermediate Alluvium
Hole Diameter (in): 6
Total Depth Drilled (ft): 95

WELL COMPLETION	Y/N	DESCRIPTION	INTERVAL
Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 95'
Surface Casing Used?	Y	6" steel	+2.5 - 2.5
Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	85 - 95'
Sand Pack?	Y	10/20 Silica Sand	82 - 95'
Annular Seal?	Y	Bentonite Chips	0.5 - 82'
Surface Seal?	Y	Portland Cement	+0.5 - 0.5
DEVELOPMENT/SAMPLING			
Well Developed?	Y	Surge/Bail/Pump	
Water Samples Taken?	Y	Long-term Monitoring	
Boring Samples Taken?	Y	Grab	Continuous
Northing: 14911.79		Easting: 3446.48	
Static Water Level Below MP: 46.44		Surface Casing Height (ft):	
Date: 6/25/09		Riser Height (ft): 2.77	
MP Description: Top of PVC		Ground Surface Elevation (ft): 3877.76	
MP Height Above or Below Ground (ft): 2.77		MP Elevation (ft): 3880.53	

Remarks:

WELL CONSTRUCTION



GRAPHICS

GEOLOGICAL DESCRIPTION

0.0 - 9.0' Silty Gravelly Sand
Light tan, poorly sorted fine to coarse grained sand with 10% silt and 10% fine gravel, dry.
9.0 - 15.0' Silty Clay
Tan, moderately plastic clay with silt (20 - 30% ?), trace fine grained sand, moist.
15.0 - 16.0' Silty Sand
Brown, moderately sorted, mostly fine grained with less medium - coarse grained sand, 10% silt, trace fine gravel, slightly moist.
16.0 - 23.0' Sandy, Clayey Silt
Brown, moderately plastic silt with 20% fine - medium grained sand and 10% clay, moist.
23.0 - 30.0' Sand
Tan, poorly sorted fine - coarse grained sand, coarse sand is sub-angular to subrounded, trace fine gravel, slightly moist.
30.0 - 35.0' Gravelly Sand
Brown, poorly sorted fine - coarse grained sand with 10% fine subrounded gravel, trace silt, moist.
35.0 - 38.0' Silty Clay
Gray/tan, low plasticity clay with silt, damp.
38.0 - 42.0' Sandy Silt
Brown, nonplastic silt with 30% fine grained sand, damp.
42.0 - 44.0' Sandy Gravel
Gray, basalt, subrounded, fine - coarse gravel with 40% poorly sorted fine - coarse sand, slightly damp.
44.0 - 50.5' Gravelly Sand
Sand and gravel layers (approximately 0.5 - 1' thick), sandy gravel from 44 - 45', sand with some gravel 45 - 46', sandy gravel 46 - 50.5'.
50.5 - 55.0' Clayey Silt
Brown, slightly plastic, firm silt with clay, moist.
55.0 - 56.0' Clayey Silt
Same as above. Split spoon and moist.
56.0 - 86.0' Clayey Silt
As above with less clay, hard drilling, density of silt increasing, moist.
86.0 - 90.0' Silty Clay
Moderately plastic clay with hard silt inclusions.
90.0 - 96.0' Silt
Highly dense silt with white ash inclusions, likely fractured, saturated, making >10 ppm.

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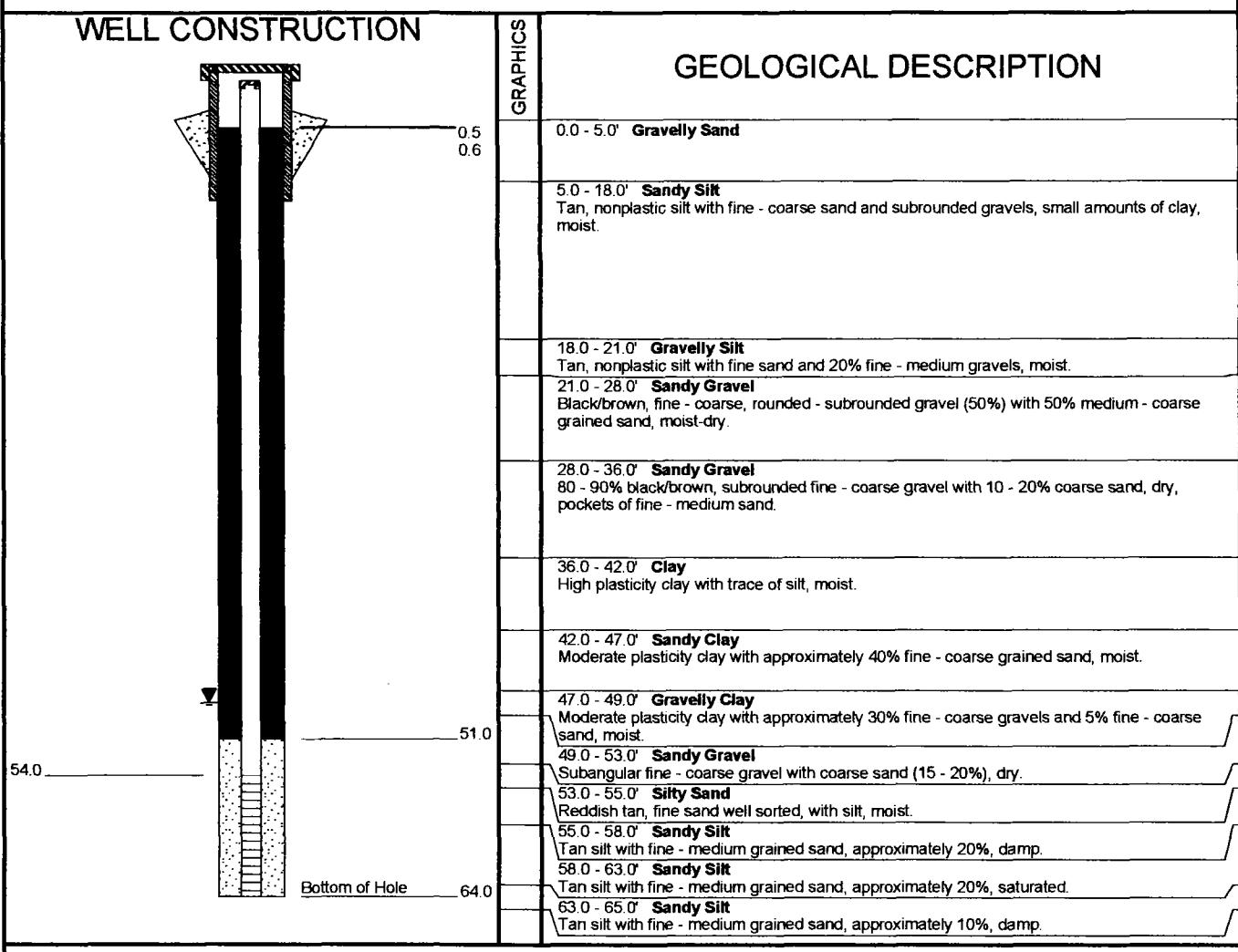
Monitor Well Log

Hole Name: EH-134

Date Hole Started: 6/1/09 Date Hole Finished: 6/2/09

Client: ASARCO LLC Project: Interim Measures East Helena Facility County: Lewis and Clark State: Montana Property Owner: ASARCO LLC Legal Description: T10N R3W S26 Location Description: Recorded By: Greg Lorenson Drilling Company: Environmental West Driller: Ron Sink Drilling Method: Tubex Drilling Fluids Used: Air Purpose of Hole: Monitoring Well Target Aquifer: Alluvium Hole Diameter (in): 6 Total Depth Drilled (ft): 64	<u>WELL COMPLETION</u>		
	Y/N	DESCRIPTION	INTERVAL
	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 64'
	Y	6-inch steel	+2.5 - 2.5
	Y	0.010-inch slot, Sch 40, PVC	54 - 64
	Y	10/20 Silica Sand	51 - 64'
	Y	Bentonite Chips	0.5 - 51'
	Y	Portland Cement	+0.5 - 0.5
	<u>DEVELOPMENT/SAMPLING</u>		
	Y	Surge/Bail/Pump	
	Y	Long-term Monitoring	
	Y	Grab	Continuous
Northing: 15792.4		Easting: 3452.61	
Static Water Level Below MP: 50.67		Surface Casing Height (ft):	
Date: 6/24/09		Riser Height (ft):	2.69
MP Description: Top of PVC		Ground Surface Elevation (ft):	3863.67
MP Height Above or Below Ground (ft): 2.69		MP Elevation (ft):	3866.36

Remarks:



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Monitor Well Log

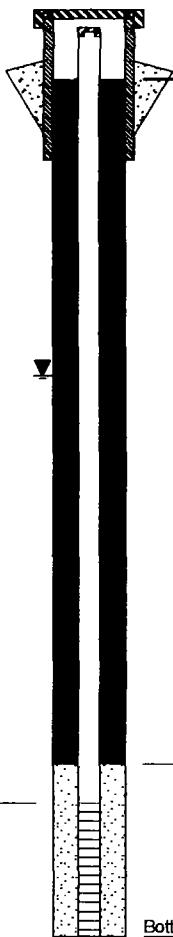
Hole Name: EH-135

Date Hole Started: 6/2/09 Date Hole Finished: 6/2/09

Client: ASARCO LLC Project: Interim Measures East Helena Facility County: Lewis and Clark State: Montana Property Owner: ASARCO LLC Legal Description: T10N R3W S25 Location Description: Recorded By: Greg Bryce Drilling Company: Environmental West Driller: Ron Sink Drilling Method: Tubex Drilling Fluids Used: Air Purpose of Hole: Monitoring Well Target Aquifer: Intermediate Hole Diameter (in): 6 Total Depth Drilled (ft): 65	WELL COMPLETION		
	Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC
	Surface Casing Used?	Y	6-inch steel
	Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC
	Sand Pack?	Y	10/20 Silica Sand
	Annular Seal?	Y	Bentonite Chips
	Surface Seal?	Y	Portland Cement
	DEVELOPMENT/SAMPLING		
	Well Developed?	Y	Surge/Bail/Pump
	Water Samples Taken?	Y	Long-term Monitoring
	Boring Samples Taken?	Y	Grab
	Northing:	15981.56	Easting: 5404.84
	Static Water Level Below MP:	25.56	Surface Casing Height (ft):
	Date:	6/24/09	Riser Height (ft): 2.71
	MP Description:	Top of PVC	Ground Surface Elevation (ft): 3846.12
	MP Height Above or Below Ground (ft):	2.71	MP Elevation (ft): 3848.83

Remarks:

WELL CONSTRUCTION



GRAPHICS

GEOLOGICAL DESCRIPTION

0.0 - 3.0'	Gravelly Sand Tan, poorly sorted, fine - coarse grained sand with 10% fine - coarse subrounded-gravel (coarse gravel is broken by drilling), trace silt, dry.
3.0 - 5.0'	Sandy Gravel Gray, 80% of coarse rounded-subrounded gravel (coarse gravel broken from drilling) with 20% fine - coarse grained sand, dry.
5.0 - 8.0'	Gravelly Sand Reddish brown, 80 - 85% poorly sorted fine - coarse grained sand with 20% fine rounded - subrounded gravel, slightly moist.
8.0 - 14.0'	Gravelly Sand As above with 70% sand and 30% gravel, slightly moist.
14.0 - 15.0'	Gravelly Sand Reddish brown, 90% poorly sorted fine - coarse grained sand (coarse sand is subrounded) with 10% fine - coarse subrounded subangular gravel, moist.
15.0 - 18.0'	Sandy Gravel 60% dark gray, fine - coarse subrounded gravel with 40% fine - coarse grained sand, moist.
18.0 - 20.0'	Sandy Gravel 55% dark gray, fine - coarse subrounded gravel with 45% fine - coarse grained sand, damp.
20.0 - 25.0'	Gravelly Sand Brown, poorly sorted, fine - coarse grained sand, with 5 - 7% fine subrounded gravel, damp.
25.0 - 26.0'	Silty Sand Brown, well sorted, fine grained sand with 30 - 40% silt, more silt with depth (transition to silt layer), damp.
30.0 - 35.0'	Sandy Silt Brown, nonplastic silt with 30% fine - medium grained sand, saturated.
35.0 - 40.0'	Silty Sand Brown, poorly sorted, fine - coarse grained sand with 40% nonplastic silt, saturated.
40.0 - 43.0'	Silty Sand Well sorted, fine grained sand with 40% silt, saturated.
43.0 - 46.0'	Silty Sand As 35 - 40 above with 80% sand, 20% silt.
46.0 - 50.0'	Sandy Silty Clay Brown, moderately plastic clay with 20% fine grained sand and 10% silt.
50.0 - 55.0'	Silty Gravelly Sand Brown, poorly sorted fine - coarse grained sand with 30% silt and 20% fine gravel.
55.0 - 60.0'	Silty Gravelly Sand As above with 30% gravel and 20% silt.
60.0 - 65.0'	Silty Gravelly Sand As above.
65.0 - 65.0'	Ash Unit (Weathered) Appears to be weathered ash, fine silt with trace sand, white inclusions with depth, reworked

WELL CONSTRUCTION

GRAPHICS

GEOLOGICAL DESCRIPTION

ash.

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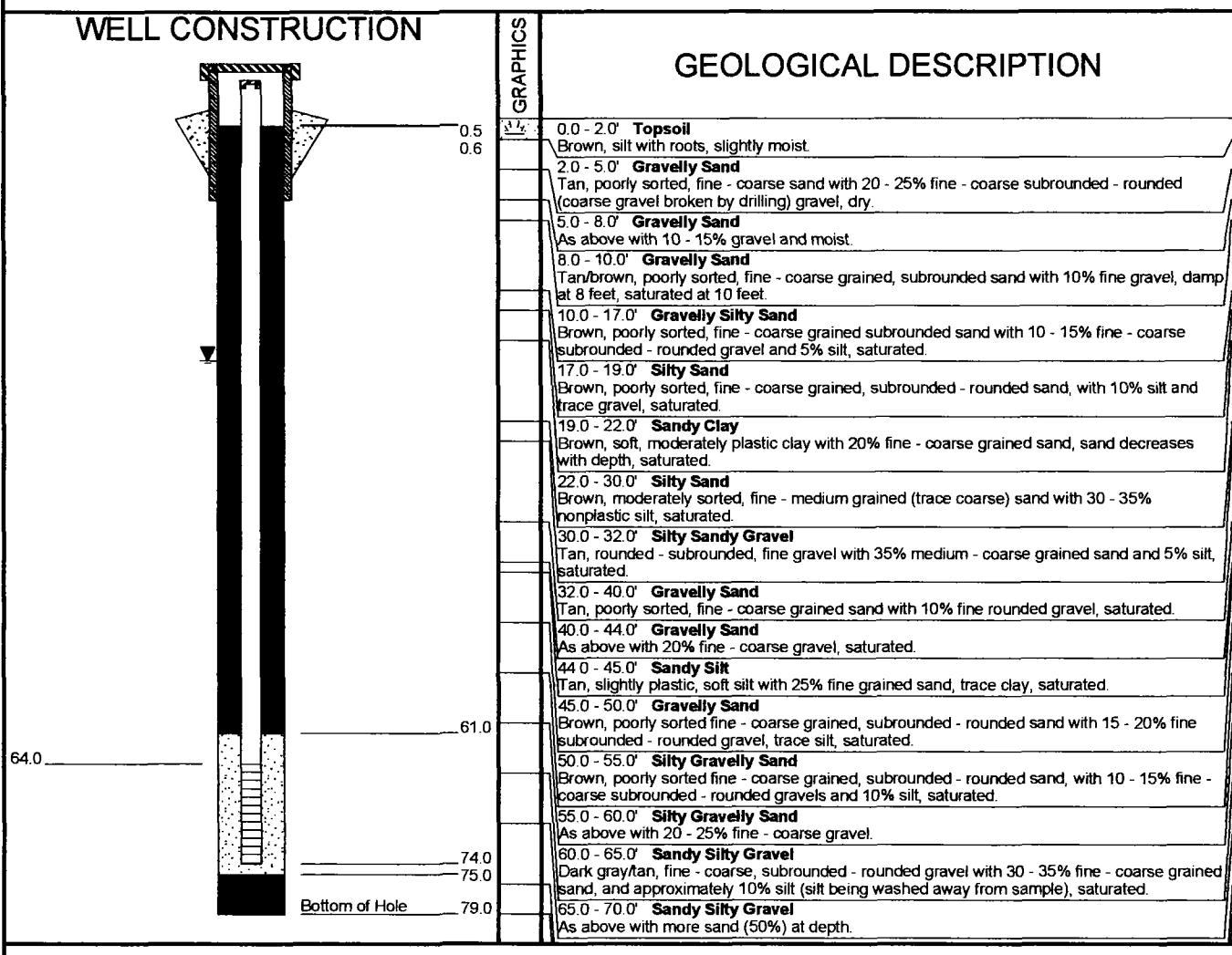
Monitor Well Log

Hole Name: EH-136

Date Hole Started: 6/10/09 Date Hole Finished: 6/10/09

Client: ASARCO LLC	WELL COMPLETION	Y/N	DESCRIPTION	INTERVAL
Project: Interim Measures East Helena Facility	Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 74'
County: Lewis and Clark State: Montana	Surface Casing Used?	Y	6-inch steel	+2.5 - 2.5
Property Owner: ASARCO LLC	Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	64 - 74
Legal Description: T10N R3W S25	Sand Pack?	Y	10/20 Silica Sand	61 - 75
Location Description:	Annular Seal?	Y	Bentonite Chips	0.5 - 61/ 75 - 79
Recorded By: Greg Bryce	Surface Seal?	Y	Portland Cement	+0.5 - 0.5
Drilling Company: Environmental West	DEVELOPMENT/SAMPLING			
Driller: Ron Sink	Well Developed?	Y	Surge/Bail/Pump	
Drilling Method: Tubex	Water Samples Taken?	Y	Long-term Monitoring	
Drilling Fluids Used: Air	Boring Samples Taken?	Y	Grab	Continuous
Purpose of Hole: Monitoring Well	Northing: 16906.98		Easting: 5199.99	
Target Aquifer: Intermediate Alluvium	Static Water Level Below MP:	26.46	Surface Casing Height (ft):	
Hole Diameter (in): 6	Date:	6/24/09	Riser Height (ft):	2.50
Total Depth Drilled (ft): 79	MP Description:	Top of PVC	Ground Surface Elevation (ft):	3832.41
	MP Height Above or Below Ground (ft):	2.50	MP Elevation (ft):	3834.91

Remarks:



WELL CONSTRUCTION

GRAPHICS

GEOLOGICAL DESCRIPTION

70.0 - 76.0' **Gravelly Silty Sand**
Tan, poorly sorted, fine - coarse grained subrounded - rounded sand with 20% fine
subrounded - rounded gravel and 10% silt.

76.0 - 79.0' **Ash Unit**
Reworked ash: tan, fine silt texture with trace of white and black inclusions.

Hydrometrics, Inc.

Consulting Scientists and Engineers
Helena, Montana

Monitor Well Log

Hole Name: EH-137

Date Hole Started: 6/11/09 Date Hole Finished: 6/11/09

Client: ASARCO LLC
Project: Interim Measures East Helena Facility
County: Lewis and Clark State: Montana
Property Owner: ASARCO LLC
Legal Description: T10N R3W S25
Location Description:

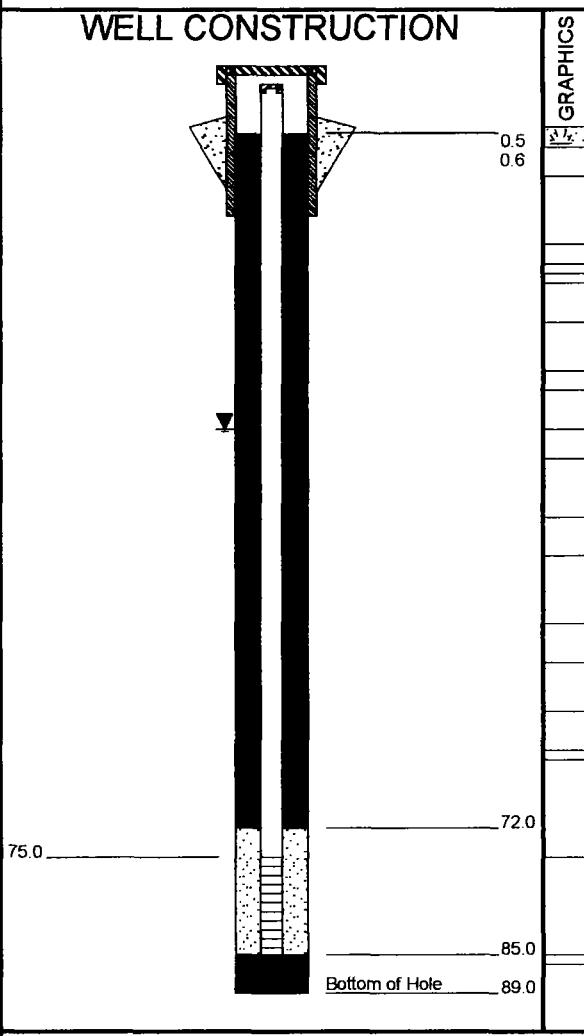
Recorded By: Greg Bryce
Drilling Company: Environmental West
Driller: Ron Sink
Drilling Method: Tubex
Drilling Fluids Used: Air
Purpose of Hole: Monitoring Well Installation
Target Aquifer: Intermediate Alluvium
Hole Diameter (in): 6
Total Depth Drilled (ft): 89

WELL COMPLETION	Y/N	DESCRIPTION	INTERVAL
Well Installed?	Y	2-inch, flush threaded, Sch 40, PVC	+2.5 - 85
Surface Casing Used?	Y	6-inch steel	+2.5 - 2.5
Screen/Perforations?	Y	0.010-inch slot, Sch 40, PVC	75 - 85
Sand Pack?	Y	10/20 Silica Sand	72 - 85
Annular Seal?	Y	Bentonite Chips	72 - 85
Surface Seal?	Y	Portland Cement	+0.5 - 0.5
<u>DEVELOPMENT/SAMPLING</u>			
Well Developed?	Y	Surge/Bail/Pump	
Water Samples Taken?	Y	Long-term Monitoring	
Boring Samples Taken?	Y	Grab	Continuous
Northing: 17375.88		Easting: 5814.04	
Static Water Level Below MP:	33.48	Surface Casing Height (ft):	
Date: 6/24/09		Riser Height (ft): 2.50	
MP Description: Top of PVC		Ground Surface Elevation (ft): 3833.58	
MP Height Above or Below Ground (ft): 2.50		MP Elevation (ft): 3836.08	

Remarks:

WELL CONSTRUCTION

STANDARD_REV3 K:\GINT\PROJECTS\1054.GPJ HYDHLN2.GDT 7/7/09



GRAPHICS

GEOLOGICAL DESCRIPTION

0.0 - 2.0'	Topsoil Light brown, silt, dry.
2.0 - 5.0'	Gravelly Sand Light brown, poorly sorted, fine - coarse grained, subangular - subrounded sand with 10% fine - coarse subrounded - rounded gravel, dry.
5.0 - 12.0'	Gravelly Sand As above with 30 - 35% gravel, moist.
12.0 - 14.0'	Sandy Gravel and Cobbles Gray, broken fine - coarse gravel (subrounded) rounded and cobbles, with 10% fine - coarse grained sand, interbedded between gravel/cobbles, sand is moist.
14.0 - 15.0'	Sand Reddish brown, poorly sorted, fine - coarse grained subangular to subrounded sand with trace (<3%) fine - coarse gravel, damp.
15.0 - 16.0'	Gravelly Sand Light brown, poorly sorted, fine - coarse grained sand with 15 - 20% fine - coarse, subrounded - rounded basalt gravel, damp.
16.0 - 20.0'	Gravelly Sand Reddish brown, poorly sorted, fine - coarse grained sand with 5 - 10% fine - coarse, subrounded gravel, trace silt, damp.
20.0 - 25.0'	Gravelly Sand As above, saturated.
25.0 - 27.0'	Silty Gravelly Sand As above with 10% silt, saturated.
27.0 - 31.0'	Sandy Silt Reddish brown, nonplastic silt with 20 - 30% fine grained sand, trace fine gravel, significant pyrite flakes, damp.
31.0 - 34.0'	Gravelly Sand Reddish brown, poorly sorted, fine - coarse grained, subrounded sand with 20% fine - coarse, subrounded - rounded gravel and approximately 5% silt, saturated.
34.0 - 40.0'	Silty Gravelly Sand As above with 10 - 15% silt.
40.0 - 44.0'	Silty Sandy Gravel Dark gray, fine - coarse, subrounded - rounded basalt gravel with 20% silt and 15 - 20% fine - coarse grained sand, saturated.
44.0 - 51.0'	Gravelly Silty Sand Light brown, fine - coarse grained sand with 25 - 30% fine - coarse, subrounded - rounded gravel and 20% moderately plastic silt, saturated.
51.0 - 55.0'	Sandy Silt Brown, soft, moderately plastic silt with 20 - 30% fine sand, sand increases with depth, trace gravel with depth.
55.0 - 60.0'	Silty Sandy Gravel Brown/dark gray, fine - coarse subangular to subrounded gravel with 20 - 30% low plasticity silt and 10 - 15% fine - coarse grained sand, saturated.
60.0 - 64.0'	Silty Sandy Gravel

Continued Next Page

Sheet 1 of 2

WELL CONSTRUCTION

GRAPHICS

GEOLOGICAL DESCRIPTION

As above with 20% silt and 5 - 10% sand, saturated.

64.0 - 65.0' **Gravelly Sand**

Reddish brown, moderately sorted, fine - medium grained sand with trace coarse sand and 5% gravel at top, no gravel at bottom, heaving sands, saturated.

65.0 - 75.0' **Silty Gravel**

Dark gray, fine - coarse, subangular - rounded gravel with 20% silt and 10% coarse sand, saturated, making good water >10 gpm.

75.0 - 85.0' **Sandy Silty Gravel**

As above with 20% sand and 10% silt.

85.0 - 86.0' **Ash Unit**

Reworked ash: light brown, dense (highly) silt with white and black inclusions.



June 10, 2009

Mrs. Louise Nordstrom
P. O. Box 601
109 Gail Street
East Helena, Montana 59635

Dear Mrs. Nordstrom:

Enclosed are the analytical results for the irrigation water samples that were collected from your irrigation groundwater well on May 27, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

Jon Nickel

Enclosure

Cc: Bob Miller
Tom Aldrich



ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-325 Nordstrom Irrigation Well
Lab ID: H09050340-004 109 Gail Street
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 11:30 DateReceived: 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	05/28/09 10:56 / hm		PH_090528A : 7	090528A-PH-W	
Conductivity	295	umhos/cm		1		A2510 B	05/28/09 10:48 / hm		COND_090528A : 790528A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/28/09 09:10 / abb		SOLID_090528A : 18	090528A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	197	mg/L		10		A2540 C	05/28/09 17:01 / hm		SOLID_090528C : 8	090528A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	84	mg/L		1		A2320 B	05/29/09 16:18 / hm		TITTR_090529A : 10	090529A-ALK-W	
Bicarbonate as HCO3	100	mg/L		1		A2320 B	05/29/09 16:18 / hm		TITTR_090529A : 10	090529A-ALK-W	
Chloride	4	mg/L		1		E300.0	05/28/09 19:42 / hm		IC101-H_090528A : 37	R53845	
Sulfate	54	mg/L		1		E300.0	05/28/09 19:42 / hm		IC101-H_090528A : 37	R53845	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Aluminum	ND	mg/L		0.1		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	
Antimony	ND	mg/L		0.003		E200.8	06/02/09 00:40 / eli-b		SUB-B130351 : 22	B_R130351	
Arsenic	ND	mg/L		0.002		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	
Barium	ND	mg/L		0.1		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Beryllium	ND	mg/L		0.001		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Cadmium	ND	mg/L		0.001		E200.8	06/02/09 00:40 / eli-b		SUB-B130351 : 22	B_R130351	
Calcium	29	mg/L		1		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Chromium	ND	mg/L		0.001		E200.8	06/02/09 00:40 / eli-b		SUB-B130351 : 22	B_R130351	
Cobalt	ND	mg/L		0.01		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	
Copper	ND	mg/L		0.001		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	
Gold	ND	mg/L		0.01		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Iron	0.04	mg/L		0.02		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Lead	ND	mg/L		0.005		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	
Magnesium	7	mg/L		1		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Manganese	ND	mg/L		0.01		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Mercury	ND	mg/L		0.001		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	
Nickel	ND	mg/L		0.01		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Potassium	2	mg/L		1		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24	B_R130265	
Selenium	ND	mg/L		0.001		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13	B_R130268	

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-325
Lab ID: H09050340-004
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 11:30 DateReceived: 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	06/02/09 00:40 / eli-b		SUB-B130351 : 22		B_R130351
Sodium	11	mg/L		1		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24		B_R130265
Thallium	ND	mg/L		0.001		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13		B_R130268
Vanadium	ND	mg/L		0.01		E200.8	05/30/09 17:35 / eli-b		SUB-B130268 : 13		B_R130268
Zinc	ND	mg/L		0.01		E200.7	05/30/09 00:12 / eli-b		SUB-B130265 : 24		B_R130265

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 10, 2009

Mrs. St. Germaine
P. O. Box 896
126 E. Clinton Street
East Helena, Montana 59635

Dear Mrs. St. Germaine:

Enclosed are the analytical results for the water samples that were collected from your residential ground water well on May 27, 2009. Access to your irrigation well could not be obtained during the sampling event. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your drinking water well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Nickel".

Jon Nickel

Enclosures

Cc: Bob Miller
Tom Aldrich



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-324 **St. Germaine Drinking Water Well**
Lab ID: H09050340-003 **126 E. Groschell Avenue**
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 10:40 **DateReceived:** 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	05/28/09 10:48 / hm		PH_090528A : 6	090528A-PH-W	
Conductivity	386	umhos/cm		1		A2510 B	05/28/09 10:46 / hm		COND_090528A : 690528A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/28/09 09:10 / abb		SOLIDs_090528A : 17	090528A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	253	mg/L		10		A2540 C	05/28/09 17:01 / hm		SOLIDs_090528C : 7	090528A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	90	mg/L		1		A2320 B	05/29/09 16:11 / hm		TITTR_090529A : 9	090529A-ALK-W	
Bicarbonate as HCO3	110	mg/L		1		A2320 B	05/29/09 16:11 / hm		TITTR_090529A : 9	090529A-ALK-W	
Chloride	8	mg/L		1		E300.0	05/28/09 18:53 / hm		IC101-H_090528A : 34	R53845	
Sulfate	83	mg/L		1		E300.0	05/28/09 18:53 / hm		IC101-H_090528A : 34	R53845	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Aluminum	ND	mg/L		0.1		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Antimony	ND	mg/L		0.003		E200.8	06/02/09 00:36 / eli-b		SUB-B130351 : 21	B_R130351	
Arsenic	ND	mg/L		0.002		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Barium	ND	mg/L		0.1		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Beryllium	ND	mg/L		0.001		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Cadmium	ND	mg/L		0.001		E200.8	06/02/09 00:36 / eli-b		SUB-B130351 : 21	B_R130351	
Calcium	30	mg/L		1		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Chromium	ND	mg/L		0.001		E200.8	06/02/09 00:36 / eli-b		SUB-B130351 : 21	B_R130351	
Cobalt	ND	mg/L		0.01		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Copper	0.015	mg/L		0.001		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Gold	ND	mg/L		0.01		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Iron	ND	mg/L		0.02		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Lead	ND	mg/L		0.005		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Magnesium	6	mg/L		1		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Manganese	ND	mg/L		0.01		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Mercury	ND	mg/L		0.001		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	
Nickel	ND	mg/L		0.01		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Potassium	12	mg/L		1		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23	B_R130265	
Selenium	0.007	mg/L		0.001		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12	B_R130268	

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-324
Lab ID: H09050340-003
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 10:40 DateReceived: 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	06/02/09 00:36 / eli-b		SUB-B130351 : 21		B_R130351
Sodium	20	mg/L		1		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23		B_R130265
Thallium	ND	mg/L		0.001		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12		B_R130268
Vanadium	ND	mg/L		0.01		E200.8	05/30/09 17:31 / eli-b		SUB-B130268 : 12		B_R130268
Zinc	0.01	mg/L		0.01		E200.7	05/30/09 00:08 / eli-b		SUB-B130265 : 23		B_R130265

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 10, 2009

John Simac
2540 Wylie Drive
P. O. Box 59
East Helena, Montana 59635

Dear Mr. Simac:

Enclosed are the analytical results for the water samples that were collected from your ground water irrigation well (both original and duplicate) on May 27, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. The May 27, 2009 samples represent the first water quality results obtained from your irrigation well. Asarco will continue to collect water quality samples from your irrigation well throughout the irrigation season.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Nickel".

Jon Nickel

Enclosures

Cc: Bob Miller
Tom Aldrich



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-322 Simac Irrigation Well (Original)
Lab ID: H09050340-001 2540 Wylie Drive
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 10:00 Date Received: 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	05/28/09 10:42 / hm		PH_090528A : 3	090528A-PH-W	
Conductivity	563	umhos/cm		1		A2510 B	05/28/09 10:38 / hm		COND_090528A : 390528A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/28/09 09:09 / abb		SOLID_S_090528A : 15	090528A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	382	mg/L		10		A2540 C	05/28/09 17:00 / hm		SOLID_S_090528C : 5	090528A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		1		A2320 B	05/29/09 15:36 / hm		TITTR_090529A : 4	090529A-ALK-W	
Bicarbonate as HCO3	120	mg/L		1		A2320 B	05/29/09 15:36 / hm		TITTR_090529A : 4	090529A-ALK-W	
Chloride	13	mg/L		1		E300.0	05/28/09 18:20 / hm		IC101-H_090528A : 32	R53845	
Sulfate	160	mg/L		1		E300.0	05/28/09 18:20 / hm		IC101-H_090528A : 32	R53845	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Aluminum	ND	mg/L		0.1		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Antimony	ND	mg/L		0.003		E200.8	06/02/09 00:28 / eli-b		SUB-B130351 : 19	B_R130351	
Arsenic	ND	mg/L		0.002		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Barium	ND	mg/L		0.1		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Beryllium	ND	mg/L		0.001		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Cadmium	0.001	mg/L		0.001		E200.8	06/02/09 00:28 / eli-b		SUB-B130351 : 19	B_R130351	
Calcium	60	mg/L		1		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Chromium	ND	mg/L		0.001		E200.8	06/02/09 00:28 / eli-b		SUB-B130351 : 19	B_R130351	
Cobalt	ND	mg/L		0.01		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Copper	ND	mg/L		0.001		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Gold	ND	mg/L		0.01		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Iron	ND	mg/L		0.02		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Lead	ND	mg/L		0.005		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Magnesium	14	mg/L		1		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Manganese	ND	mg/L		0.01		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Mercury	ND	mg/L		0.001		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	
Nickel	ND	mg/L		0.01		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Potassium	3	mg/L		1		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21	B_R130265	
Selenium	0.037	mg/L		0.001		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10	B_R130268	

Report Definitions: RL - Analyte reporting limit.

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ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-322
Lab ID: H09050340-001
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 10:00 DateReceived: 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	06/02/09 00:28 / eli-b		SUB-B130351 : 19		B_R130351
Sodium	23	mg/L		1		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21		B_R130265
Thallium	ND	mg/L		0.001		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10		B_R130268
Vanadium	ND	mg/L		0.01		E200.8	05/30/09 17:07 / eli-b		SUB-B130268 : 10		B_R130268
Zinc	ND	mg/L		0.01		E200.7	05/29/09 23:56 / eli-b		SUB-B130265 : 21		B_R130265

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-323
Lab ID: H09050340-002
Matrix: Groundwater

Simac Irrigation Well (Duplicate)
2540 Wylie Drive

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 10:20
Report Date: 06/08/09
DateReceived: 05/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	05/28/09 10:45 / hm		PH_090528A : 4	090528A-PH-W	
Conductivity	561	umhos/cm		1		A2510 B	05/28/09 10:40 / hm		COND_090528A : 490528A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/28/09 09:09 / abb		SOLID_090528A : 16	090528A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	386	mg/L		10		A2540 C	05/28/09 17:00 / hm		SOLID_090528C : 6	090528A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		1		A2320 B	05/29/09 15:52 / hm		TITTR_090529A : 6	090529A-ALK-W	
Bicarbonate as HCO3	120	mg/L		1		A2320 B	05/29/09 15:52 / hm		TITTR_090529A : 6	090529A-ALK-W	
Chloride	13	mg/L		1		E300.0	05/28/09 18:36 / hm		IC101-H_090528A : 33	R53845	
Sulfate	160	mg/L		1		E300.0	05/28/09 18:36 / hm		IC101-H_090528A : 33	R53845	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Aluminum	ND	mg/L		0.1		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	
Antimony	ND	mg/L		0.003		E200.8	06/02/09 00:32 / eli-b		SUB-B130351 : 20	B_R130351	
Arsenic	ND	mg/L		0.002		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	
Barium	ND	mg/L		0.1		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Beryllium	ND	mg/L		0.001		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Cadmium	0.002	mg/L		0.001		E200.8	06/02/09 00:32 / eli-b		SUB-B130351 : 20	B_R130351	
Calcium	56	mg/L		1		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Chromium	ND	mg/L		0.001		E200.8	06/02/09 00:32 / eli-b		SUB-B130351 : 20	B_R130351	
Cobalt	ND	mg/L		0.01		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	
Copper	ND	mg/L		0.001		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	
Gold	ND	mg/L		0.01		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Iron	ND	mg/L		0.02		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Lead	ND	mg/L		0.005		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	
Magnesium	14	mg/L		1		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Manganese	ND	mg/L		0.01		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Mercury	ND	mg/L		0.001		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	
Nickel	ND	mg/L		0.01		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Potassium	3	mg/L		1		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22	B_R130265	
Selenium	0.039	mg/L		0.001		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11	B_R130268	

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-323
Lab ID: H09050340-002
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/27/09 10:20 Date Received: 05/27/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	06/02/09 00:32 / eli-b		SUB-B130351 : 20		B_R130351
Sodium	23	mg/L		1		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22		B_R130265
Thallium	ND	mg/L		0.001		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11		B_R130268
Vanadium	ND	mg/L		0.01		E200.8	05/30/09 17:27 / eli-b		SUB-B130268 : 11		B_R130268
Zinc	ND	mg/L		0.01		E200.7	05/30/09 00:04 / eli-b		SUB-B130265 : 22		B_R130265

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 22, 2009

David Jensen
P. O. Box 1021
401 Gail Street
East Helena, Montana 59635

Dear Mr. Jensen:

Enclosed are the analytical results for the water samples that were collected from your ground water well on June 5, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Concentration Limits (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Nickel".

Jon Nickel

Enclosure

Cc: Bob Miller
Tom Aldrich



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-300
Lab ID: H09060109-001
Matrix: Groundwater

Jensen Residence
401 Gail Street

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 07:35 **Date Received:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	06/09/09 12:14 / JG		PH_090609A : 11		090609A-PH-W
Conductivity	787	umhos/cm		1		A2510 B	06/08/09 14:34 / sld		COND_090608A : 7190608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:10 / JG		SOLIDs_090608A : 18	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	592	mg/L		10		A2540 C	06/08/09 09:46 / JG		SOLIDs_090608B : 54	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	06/15/09 12:06 / JG		TITTR_090615A : 13		090615A-ALK-W
Bicarbonate as HCO3	150	mg/L		1		A2320 B	06/15/09 12:06 / JG		TITTR_090615A : 13		090615A-ALK-W
Chloride	30	mg/L		1		E300.0	06/17/09 15:45 / hm		IC101-H_090616A : 100		R54350
Sulfate	270	mg/L		1		E300.0	06/17/09 15:45 / hm		IC101-H_090616A : 100		R54350
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Antimony	ND	mg/L		0.003		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Arsenic	0.003	mg/L		0.002		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Barium	ND	mg/L		0.1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Beryllium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Cadmium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Calcium	104	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Chromium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Copper	0.002	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Gold	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Iron	0.03	mg/L		0.02		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Lead	ND	mg/L		0.005		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Magnesium	24	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Manganese	0.02	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Mercury	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Nickel	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Potassium	6	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Selenium	0.023	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155

Report Definitions: RL - Analyte reporting limit.

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ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-300
Lab ID: H09060109-001
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 07:35 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Sodium	25	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Zinc	0.02	mg/L		0.01		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 22, 2009

Mrs. Louise Nordstrom
P. O. Box 601
109 Gail Street
East Helena, Montana 59635

Dear Mrs. Nordstrom:

Enclosed are the analytical results for the irrigation water samples that were collected from your irrigation groundwater well on June 5, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Nickel".

Jon Nickel

Enclosure

Cc: Bob Miller
Tom Aldrich



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-301
Lab ID: H09060109-002
Matrix: Groundwater

Nordstrom Residence
109 Gail Street

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 08:10 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/09/09 12:20 / JG		PH_090609A : 12	090609A-PH-W	
Conductivity	304	umhos/cm		1		A2510 B	06/08/09 14:35 / sld		COND_090608A : 7290608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:10 / JG		SOLID_090608A : 19	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	214	mg/L		10		A2540 C	06/08/09 09:47 / JG		SOLID_090608B : 55	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	84	mg/L		1		A2320 B	06/17/09 10:32 / JG		TITTR_090617A : 3	090617A-ALK-W	
Bicarbonate as HCO3	100	mg/L		1		A2320 B	06/17/09 10:32 / JG		TITTR_090617A : 3	090617A-ALK-W	
Chloride	5	mg/L		1		E300.0	06/17/09 16:01 / hm		IC101-H_090616A : 101	R54350	
Sulfate	57	mg/L		1		E300.0	06/17/09 16:01 / hm		IC101-H_090616A : 101	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Cadmium	0.002	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Calcium	34	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Copper	0.002	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Magnesium	8	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Potassium	3	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Selenium	0.002	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-301
Lab ID: H09060109-002
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 08:10 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938
Sodium	13	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 22, 2009

Pat Foley
203 Gail Street
P. O. Box 1551
East Helena, Montana 59635

Dear Mr. Foley:

Enclosed are the analytical results for the water sample that was collected from the 203 Gail Street ground water well on June 5, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Nickel".

Jon Nickel

Enclosure

Cc: Bob Miller
Tom Aldrich



ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-302
Lab ID: H09060109-003
Matrix: Groundwater

Foley Residence
203 Gail Street

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:00 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/09/09 12:32 / JG		PH_090609A : 14	090609A-PH-W	
Conductivity	295	umhos/cm		1		A2510 B	06/08/09 14:37 / sld		COND_090608A : 7490608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:11 / JG		SOLIDS_090608A : 20	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	200	mg/L		10		A2540 C	06/08/09 09:48 / JG		SOLIDS_090608B : 58	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	78	mg/L		1		A2320 B	06/17/09 10:23 / JG		TITTR_090617A : 4	090617A-ALK-W	
Bicarbonate as HCO3	95	mg/L		1		A2320 B	06/17/09 10:23 / JG		TITTR_090617A : 4	090617A-ALK-W	
Chloride	4	mg/L		1		E300.0	06/17/09 16:18 / hm		IC101-H_090616A : 102	R54350	
Sulfate	58	mg/L		1		E300.0	06/17/09 16:18 / hm		IC101-H_090616A : 102	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Calcium	33	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Copper	0.010	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Magnesium	8	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Potassium	3	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24	B_R130938	
Selenium	0.001	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3	B_R131155	

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-302
Lab ID: H09060109-003
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:00 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Sodium	13	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 22, 2009

John Simac
2540 Wylie Drive
P. O. Box 59
East Helena, Montana 59635

Dear Mr. Simac:

Enclosed are the analytical results for the water samples that were collected from your ground water drinking well and irrigation well (both original and duplicate) on June 5, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,
A handwritten signature in black ink, appearing to read "Jon Nickel".
Jon Nickel

Enclosures

Cc: Bob Miller
Tom Aldrich



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-304 Simac Drinking Water Residence
Lab ID: H09060109-005 2540 Wylie Drive
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:00 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/09/09 12:42 / JG		PH_090609A : 16	090609A-PH-W	
Conductivity	475	umhos/cm		1		A2510 B	06/08/09 14:38 / sld		COND_090608A : 7690608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:12 / JG		SOLIDS_090608A : 22	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	344	mg/L		10		A2540 C	06/08/09 09:49 / JG		SOLIDS_090608B : 60	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	06/17/09 11:13 / JG		TITTR_090617A : 7	090617A-ALK-W	
Bicarbonate as HCO3	140	mg/L		1		A2320 B	06/17/09 11:13 / JG		TITTR_090617A : 7	090617A-ALK-W	
Chloride	7	mg/L		1		E300.0	06/17/09 17:23 / hm		IC101-H_090616A : 106	R54350	
Sulfate	120	mg/L		1		E300.0	06/17/09 17:23 / hm		IC101-H_090616A : 106	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Calcium	58	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Copper	0.001	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Magnesium	13	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Potassium	5	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Selenium	0.003	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-304
Lab ID: H09060109-005
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:00 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26		B_R130938
Sodium	17	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26		B_R130938
Zinc	0.02	mg/L		0.01		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5		B_R131155

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-305 Simac Irrigation Water (Original)
Lab ID: H09060109-006 2540 Wylie Drive
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:30 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	06/09/09 12:48 / JG		PH_090609A : 17	090609A-PH-W	
Conductivity	553	umhos/cm		1		A2510 B	06/08/09 14:39 / sld		COND_090608A : 7790608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:12 / JG		SOLID_S_090608A : 23	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	384	mg/L		10		A2540 C	06/08/09 09:50 / JG		SOLID_S_090608B : 61	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO ₃	97	mg/L		1		A2320 B	06/17/09 11:26 / JG		TITTR_090617A : 8	090617A-ALK-W	
Bicarbonate as HCO ₃	120	mg/L		1		A2320 B	06/17/09 11:26 / JG		TITTR_090617A : 8	090617A-ALK-W	
Chloride	14	mg/L		1		E300.0	06/17/09 17:40 / hm		IC101-H_090616A : 107	R54350	
Sulfate	170	mg/L		1		E300.0	06/17/09 17:40 / hm		IC101-H_090616A : 107	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Cadmium	0.002	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Calcium	62	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Copper	0.004	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Magnesium	15	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Potassium	4	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Selenium	0.040	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	

Report Definitions: RL - Analyte reporting limit.

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ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-305
Lab ID: H09060109-006
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:30 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938
Sodium	26	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-306
Lab ID: H09060109-007
Matrix: Groundwater

Simac Irrigation Water (Duplicate)
2540 Wylie Drive

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:45 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	06/09/09 12:52 / JG		PH_090609A : 19	090609A-PH-W	
Conductivity	557	umhos/cm		1		A2510 B	06/08/09 14:40 / sld		COND_090608A : 7890608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:13 / JG		SOLIDs_090608A : 24	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	374	mg/L		10		A2540 C	06/08/09 09:51 / JG		SOLIDs_090608B : 62	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO ₃	97	mg/L		1		A2320 B	06/17/09 11:37 / JG		TITTR_090617A : 9	090617A-ALK-W	
Bicarbonate as HCO ₃	120	mg/L		1		A2320 B	06/17/09 11:37 / JG		TITTR_090617A : 9	090617A-ALK-W	
Chloride	14	mg/L		1		E300.0	06/17/09 17:56 / hm		IC101-H_090616A : 108	R54350	
Sulfate	170	mg/L		1		E300.0	06/17/09 17:56 / hm		IC101-H_090616A : 108	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Arsenic	0.003	mg/L		0.002		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Cadmium	0.001	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Calcium	62	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Copper	0.004	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Magnesium	15	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Potassium	4	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Selenium	0.039	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	

Report RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-306
Lab ID: H09060109-007
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:45 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938
Sodium	27	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



June 22, 2009

Matt Venetz
2489 Wyline Drive
P.O. Box 778
East Helena, Montana 59635

Dear Mr. Venetz:

Enclosed are the analytical results for the water samples that were collected from your ground water drinking well on June 5, 2009. The sampling of your well was performed at your request. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested, as shown on the attached table. These recent water quality results are consistent with the April 2008 monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

Jon Nickel

Enclosures

Cc: Bob Miller
Tom Aldrich



ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-303
Lab ID: H09060109-004
Matrix: Venetz Residence
Groundwater
2489 Wylie Drive

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:30 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	06/09/09 12:35 / JG		PH_090609A : 15	090609A-PH-W	
Conductivity	295	umhos/cm		1		A2510 B	06/08/09 14:38 / std		COND_090608A : 7590608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:11 / JG		SOLIDS_090608A : 21	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	192	mg/L		10		A2540 C	06/08/09 09:48 / JG		SOLIDS_090608B : 59	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO ₃	81	mg/L		1		A2320 B	06/17/09 10:53 / JG		TITTR_090617A : 6	090617A-ALK-W	
Bicarbonate as HCO ₃	99	mg/L		1		A2320 B	06/17/09 10:53 / JG		TITTR_090617A : 6	090617A-ALK-W	
Chloride	4	mg/L		1		E300.0	06/17/09 17:07 / hm		IC101-H_090616A : 105	R54350	
Sulfate	55	mg/L		1		E300.0	06/17/09 17:07 / hm		IC101-H_090616A : 105	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Calcium	33	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Copper	0.004	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Magnesium	8	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Potassium	3	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Selenium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	

Report RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-303
Lab ID: H09060109-004
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:30 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25		B_R130938
Sodium	13	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25		B_R130938
Zinc	0.01	mg/L		0.01		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4		B_R131155

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

Federal and State Water Quality Criteria

Parameter	Montana Human Health Standard		Montana Freshwater Aquatic Life Standard		Federal MCL/Action Level
	Ground Water	Surface Water	Chronic	Acute	
Aluminum (Al)	--	--	0.087	0.75	0.05 - 0.20*
Antimony (Sb)	0.006	0.0056	--	--	0.006
Arsenic (As)	0.01	0.01	0.15	0.34	0.010
Barium (Ba)	2	2	--	--	2
Beryllium (Be)	0.004	0.004	--	--	0.004
Cadmium (Cd)	0.005	0.005	0.0003+	0.0021+	0.005
Chromium (Cr)	0.1	0.1	--	--	0.1
Chromium (III) (Cr (III))	--	--	0.086+	1.80+	--
Chromium (VI) (Cr (VI))	--	--	0.011	0.016	--
Copper (Cu)	1.3	1.3	0.009+	0.014+	1.3
Iron (Fe)	0.3#	0.3#	1	--	0.3*
Lead (Pb)	0.015	0.015	0.0032+	0.082+	0.015
Manganese (Mn)	0.05#	0.05#	--	--	0.05*
Mercury (Hg)	0.002	0.00005	0.00091	0.0017	0.002
Nickel (Ni)	0.1	0.1	0.052+	0.469+	--
Selenium (Se)	0.05	0.05	0.005	0.02	0.05
Silver (Ag)	0.1	0.1	--	0.0041+	0.1*
Thallium (Tl)	0.002	0.00024	--	--	0.002
Zinc (Zn)	2	2	0.120+	0.120+	5*

Notes: # = narrative standard (guidance level based on Secondary Federal MCL)

+ = hardness-dependent parameter; value shown is for 100 mg/L hardness as CaCO₃

* = Secondary Federal MCL (non-enforceable guideline)

Montana criteria based on Circular DEQ-7, February 2006 Version

Federal criteria obtained from <http://www.epa.gov/safewater/contaminants/index.html#listmcl>

ACCESS AGREEMENT

ASARCO	OWNER
ASARCO LLC 100 Smelter Avenue P. O. Box 1230 East Helena, Montana 59635	Helena Sand and Gravel 2209 Airport Road P. O. Box 5960 Helena, Montana 59601

RECITAL:

- A. On May 5, 1998, ASARCO Incorporated and the United States Environmental Agency entered into a Consent Decree (Civil Action No. CV 98-3-H-CCL) to further the objectives of the Resources Conservation and Recovery Act and the Clean Water Act. Pursuant to this Consent Decree and associated Interim Measures Work Plan, ASARCO LLC (as successor in interest to ASARCO Incorporated and hereafter "Asarco") has agreed to conduct certain activities (as more specifically described in Consent Decree and the Interim Measures Work Plan, the "Work") including but not limited to well installation, excavation associated with well installation, sampling, and inspection, and any and all activities related to or required in connection with the Work, on property owned by Helena Sand and Gravel (Owner). The Property, as described in Section 1 below, is one of the properties described therein.
- B. In order to perform the Work, Asarco requires access to the Property.
- C. This executed Access Agreement shall be incorporated by reference into the Consent Decree.

AGREEMENT:

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Description of Property. Owner warrants that the Owner is the owner of real property located within the County of Lewis and Clark, State of Montana (the "Property") that is northwest of the City of East Helena in Section 23, 24, and 25, Range 3W, T10N, in which monitoring wells EH-131, EH-136, and EH-137 will be constructed, as more fully described on the attached map.
2. Grant of Access. Owner grants Asarco the limited right to enter upon the Property and to perform the Work as described herein. Asarco warrants and represents that its Work, and all operations on the Property arising out of, or in furtherance of, this Access Agreement shall not cause, allow, or contribute to

any discharge, release, spill, leaking, leaching, disposing, pumping, pouring, emitting, emptying or dumping of contaminants or substances onto the Property, or any waters located on or under the Property, of a character, quantity, or concentration prohibited in any way by any federal, state, or local law, regulation, or ordinance.

3. Availability of Access. Owner hereby grants Asarco access to the Property at all reasonable times, following 24-hour advanced oral notice to Owner, beginning immediately after notice to Owner and continuing for the duration of the Access Agreement for the sole purpose of carrying out the terms of this Access Agreement. Asarco shall not interfere with Owner's operations or activities on the Property.
4. Sampling Results. Owner shall be entitled to receive a copy of the results of any testing done in connection with the sampling. Owner's permission to allow Asarco access to its Property is not an admission of liability for any contamination discovered on or under the Property, and Owner denies liability for any such contamination which may be discovered. Owner reserves all legal rights and defenses, including without limitation any rights against others that may currently, or may in the future, exist as regards the contamination of, or other damage to, the Property.
5. Expense and Compliance with Laws. Asarco shall pay the expense of performing the Work. All activities undertaken by Asarco, or for the benefit of Asarco or the Work, in connection with this Agreement shall fully comply with all applicable laws and regulations, including laws relating to worker safety and the proper disposal of any samples taken and any soil or water generated in the process of taking the samples.
6. Duration. This Access Agreement shall remain in effect from the date hereof until the completion of the Work. Asarco does not guarantee that the Work will be completed by any given date but in no event shall the term extend beyond June 1, 2014. Upon completion of the Work, Asarco shall make reasonable efforts to restore the Property to the conditions it was in prior to the Work. Asarco shall also undertake the transport and disposal of any waste generated and/or collected on the Property to a facility approved by EPA. The provisions of paragraphs 10 and 11 shall survive the termination of this Agreement.
7. Access to Asarco Representatives. All rights granted to Asarco under this Access Agreement shall also apply to Asarco's agents, contractors, and subcontractors who are performing the Work.
8. Additional Access for Inspection and Project Oversight. Owner grants EPA and the State of Montana and its agents, contractors, and subcontractors, the above-described limited right to enter the Property at all reasonable times

following 24 hour advanced oral notice to Owner for the purpose of inspecting site conditions, activities, and the results of activities undertaken by Asarco while performing the Work.

9. Asarco not an EPA and/or State of Montana Representative. Asarco is not, and shall not be deemed to be, a representative or agent of EPA and/or the State of Montana with respect to liability associated with the Work.
10. Indemnity. Asarco shall defend, indemnify and hold Owner, its officers, employees, agents, insurers, sureties, and parent and affiliated corporations, harmless from any and all claims, suits, liabilities, fines, penalties, damages, losses, costs, and expenses (including attorneys', experts' fees; or clean-up costs) arising out of or in any way related to (i) the performance of the Work, (ii) any breach of this Agreement, or (iii) any act by Asarco, its invitees, or any person performing Work directly or indirectly on behalf of Asarco, regardless of whether Owner is partially at fault. Asarco's indemnity and defense obligations shall apply to any claim against Owner by any employee of Asarco; and Asarco shall not assert as a defense in any suit by Owner to enforce Asarco's obligations under this provision any immunity or other defense provided under any worker's compensation or other laws. Asarco's obligations under this provision shall not be limited by any other provision of this Agreement or by any law. Asarco assumes the risk of injury associated with the conduct of the Work and /or associated with its presence on the Property, and Asarco warrants and represents that its agents, employees and subcontractors shall be properly trained to identify and remedy or avoid any hazard or dangerous condition on the Property. Asarco releases any claims against Owner relating to the condition of the Property.
11. Insurance. Asarco shall, and shall cause each of its contractors and agents to, maintain (i) worker's compensation and employer's liability insurance in the statutory limits required by each state in which they have employees to fully protect against loss from personal injury, including death, to any of their employees, (ii) comprehensive automobile liability on each of their owned vehicles, general liability (including product liability and completed operations coverages,) contractual liability and property damage insurance, and (iii) pollution legal liability insurance with coverage for any losses caused by pollution conditions that arise from the operations of Asarco on the Property. All such insurance shall be written by insurers acceptable to Owner, having minimum coverage of \$2,000,000 combined single limit, on an "occurrence" basis and not on a "claims made" basis, with \$5,000,000 in aggregate. All policies, except for worker's compensation policies, shall name Owner as an additional insured with primary coverage (with any other third-party coverage provided for Owner to be deemed as excess only). Excess, or umbrella, coverage may be used to satisfy the limits specified above. All insurance shall expressly provide that all rights of subrogation against Owner are waived, that no amendment or cancellation of any policy

shall be effective until 30 days' written notice to Owner. At any time Owner so requests, Asarco shall furnish certificates to Owner evidencing the required insurance. Performance of Work by Asarco prior to Owner's receipt of such certificates shall not diminish Asarco's duty to maintain the required insurance or to supply such certificates.

12. Miscellaneous. This Access Agreement constitutes the complete agreement between the parties with respect to the subject matter hereof and supercedes any prior agreements or understandings, oral or written. No waiver under this Access Agreement shall be valid unless it is given in writing and duly executed by the party to be charged therewith. This Access Agreement shall be to the benefit of and be binding upon the parties and their respective successors and assigns. This Access Agreement shall be governed by and interpreted in accordance with the internal laws of the State of Montana. This Access Agreement shall be effective as of the date signed below.

OWNER:

By: J. Scott Clark

Its: Vice President

Date: June 8, 2008

ASARCO LLC:

By: Tim Hart

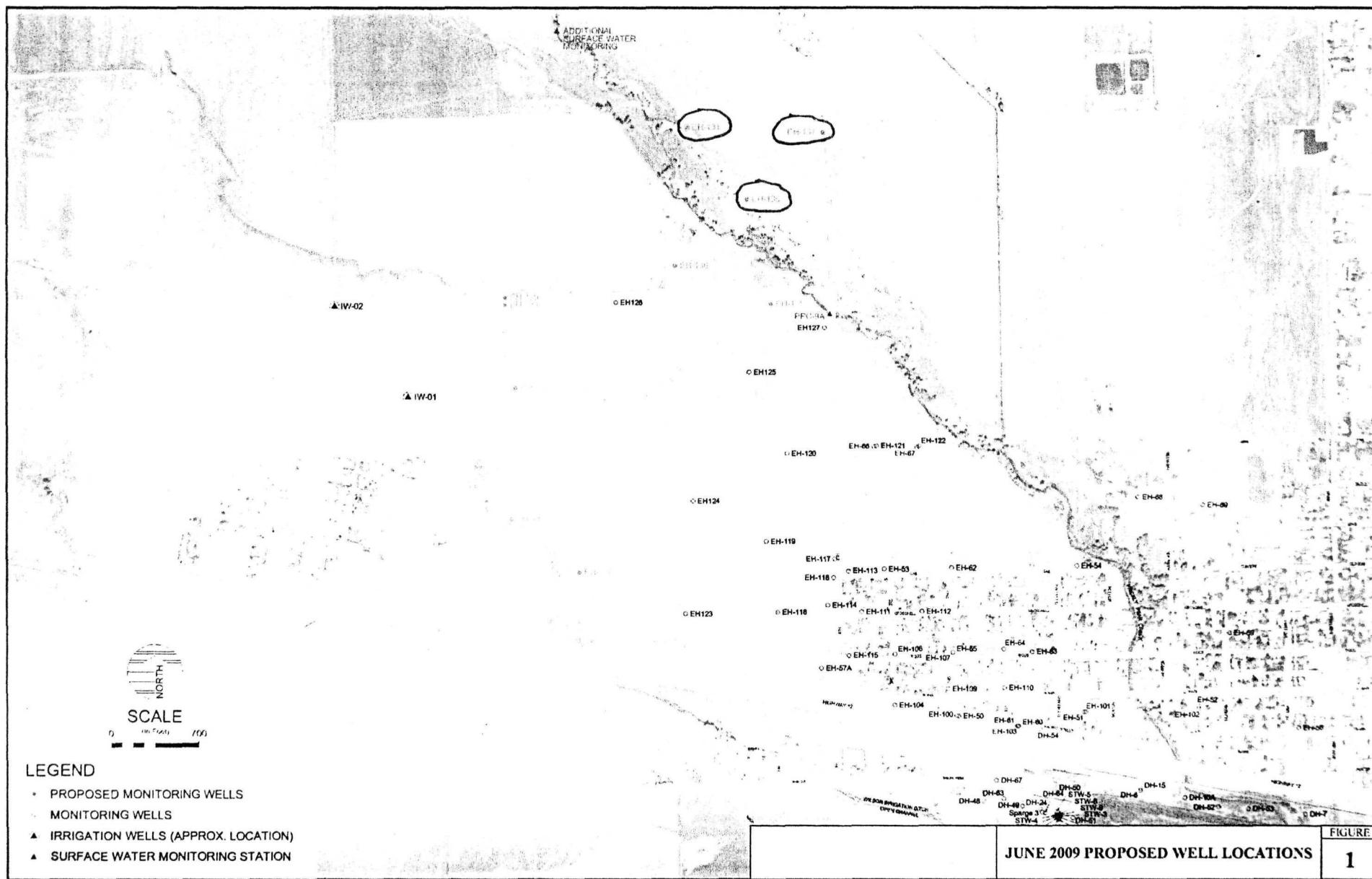
Its: U.S. Env. Affairs

Date: June 9, 2008

By: D.E. McClester

Its: Exec. U.P.

Date: June 9, 2008



ACCESS AGREEMENT

ASARCO

OWNER

ASARCO LLC
100 Smelter Avenue
P. O. Box 1230
East Helena, Montana 59635

John Simac
2540 Wylie Drive
P. O. Box 59
East Helena, Montana 59635

RECITAL:

- A. On May 5, 1998, ASARCO Incorporated and the United States Environmental Agency entered into a Consent Decree (Civil Action No. CV 98-3-H-CCL) to further the objectives of the Resources Conservation and Recovery Act and the Clean Water Act. Pursuant to this Consent Decree and associated Interim Measures Work Plan, ASARCO LLC (as successor in interest to ASARCO Incorporated and hereafter "Asarco") has agreed to conduct certain activities (as more specifically described in Consent Decree and the Interim Measures Work Plan, the "Work") including but not limited to well installation, excavation associated with well installation, sampling, and inspection, and any and all activities related to or required in connection with the Work, on property owned by John Simac (Owner). The Property, as described in Section 1 below, is one of the properties described therein.
- B. In order to perform the Work, Asarco requires access to the Property.
- C. This executed Access Agreement shall be incorporated by reference into the Consent Decree.

AGREEMENT:

For good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties agree as follows:

1. Description of Property. Owner warrants that the Owner is the owner of real property located within the County of Lewis and Clark, State of Montana (the "Property") that is northwest of the City of East Helena in Section 26, Range 3W, T10N, west of the 2540 residence along the Burnham fence line, as more fully illustrated as EH-130 on the attached map.
2. Grant of Access. Owner grants Asarco the right to enter upon the Property and to perform the Work.

- 3. Availability of Access. Owner hereby grants Asarco access to the Property at all reasonable times beginning immediately after notice to Owner and continuing for the duration of the Access Agreement for the sole purpose of carrying out the terms of this Access Agreement. Owner shall not interfere with the Work.
- 4. Sampling Results. Samples collected during the sampling shall not be returned to Owner. Owner shall be entitled to receive a copy of the results of any testing done in connection with the sampling following written request to Asarco.
- 5. Expense. Asarco shall pay the expense of performing the Work.
- 6. Duration. This Access Agreement shall remain in effect from the date hereof until the completion of the Work. Asarco does not guarantee that the Work will be completed by any given date but in no event shall the term extend beyond June 1, 2014. ~~ACCESS TO SAMPLE WELL WILL EXPIRE ON 12/31/2009.~~
- 7. Access to Asarco Representatives. All rights granted to Asarco under this Access Agreement shall also apply to Asarco's agents, contractors, and subcontractors who are performing the Work.
- 8. Additional Access for Inspection and Project Oversight. Owner grants EPA and the State of Montana and its agents, contractors, and subcontractors, the right to enter the Property at all reasonable times beginning three days after notice provided by Asarco pursuant to Paragraph 3 of this Access Agreement for the purpose of inspecting site conditions, activities, and the results of activities undertaken by Asarco while performing the Work.
- 9. Asarco not an EPA and/or State of Montana Representative. Asarco is not, and shall not be deemed to be, a representative or agent of EPA and/or the State of Montana with respect to liability associated with the Work.
- 10. No Incidental or Consequential Damages. Neither Asarco nor Owner may recover incidental or consequential damages in any legal proceedings instituted in connection with the Access Agreement.
- 11. Miscellaneous. This Access Agreement constitutes the complete agreement between the parties with respect to the subject matter hereof and supercedes any prior agreements or understandings, oral or written. No waiver under this Access Agreement shall be valid unless it is given in writing and duly executed by the party to be charged therewith. This Access Agreement shall be to the benefit of and be binding upon the parties and their respective successors and assigns. This Access Agreement shall be governed by and interpreted in accordance with the internal laws of the State of Montana. This Access Agreement shall be effective as of the date signed below.

OWNER:

By: John W. Burnac

Date: 6-11-09

ASARCO LLC:

By: The 1st flr

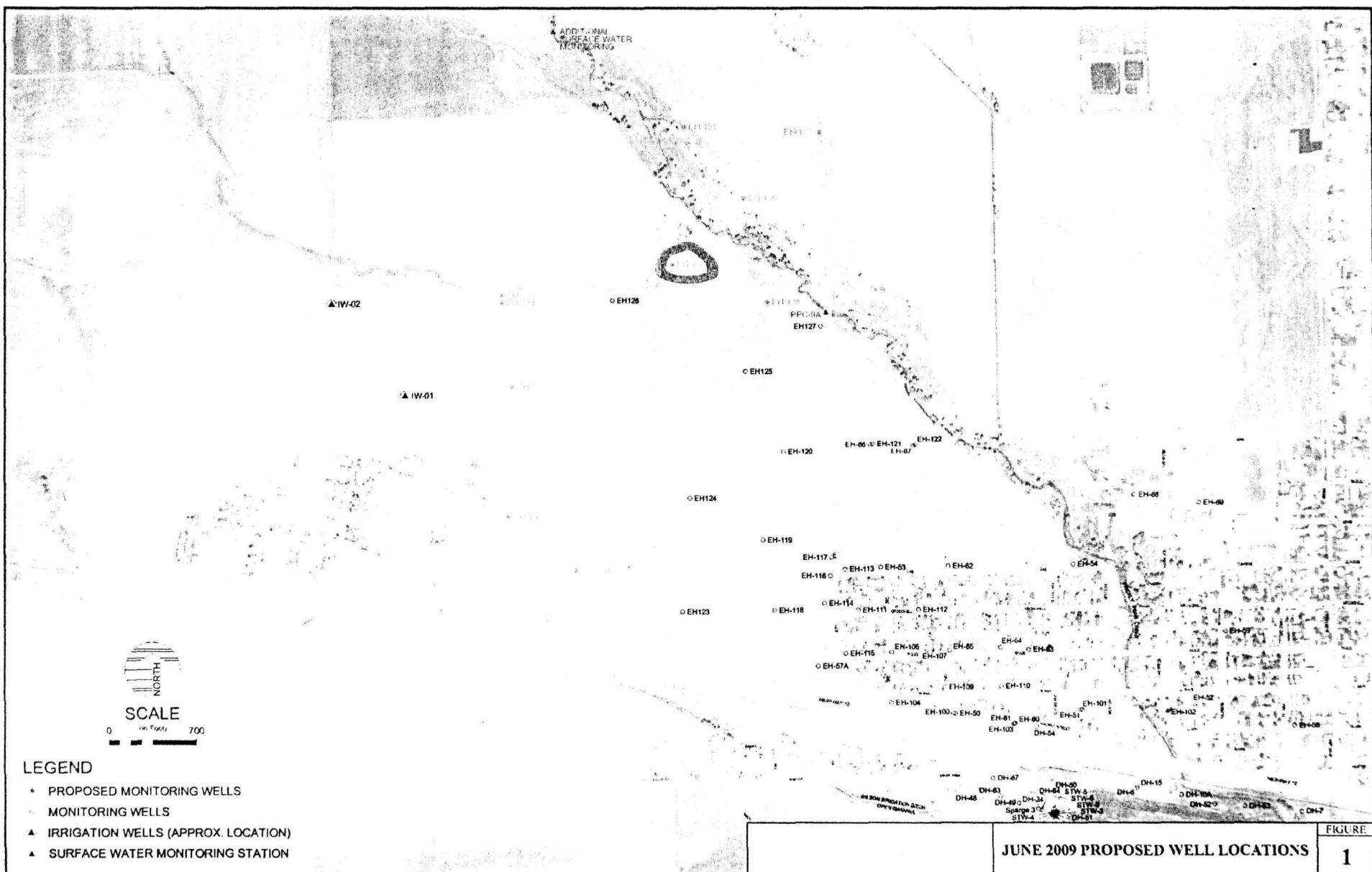
Its: VP Env Affairs

Date: June 11, 2009

By: D. E. McNamara

Its: Exco. V.P.

Date: June 11, 2009



UPDATE DATE: 01-12-2014
TABLES ARE CACHED AND ARE NOT REFRESHED ON A DAILY BASIS. PLEASE REFER TO THE APPROPRIATE SOURCE FOR THE LATEST INFORMATION.

LEGEND

- PROPOSED MONITORING WELLS
 - MONITORING WELLS
 - ▲ IRRIGATION WELLS (APPROX. LOCATION)
 - ▲ SURFACE WATER MONITORING STATION

JUNE 2009 PROPOSED WELL LOCATIONS

1

VALIDATION SUMMARY
ASARCO EAST HELENA POST RI/FS LONG-TERM
MONITORING PROGRAM
EAST HELENA RESIDENTIAL GROUNDWATER
INORGANIC ANALYSES
June 2009 SAMPLE EVENT
ENERGY LABORATORY WORK ORDER NO.
H09060109

Prepared for:
Mr. Jon Nickel
ASARCO Incorporated
PO Box 1230
East Helena, MT 59635

Prepared by:
Linda L. Tangen
6900 Cherry Blossom Lane
Albuquerque, NM 87111

July 2009

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GLOSSARY OF TERMS

CLP	Contract Laboratory Program
COC	Chain of Custody
CRDL.....	Contract Required Detection Limit
DI.....	Deionized Water
DIS.....	Dissolved
DQO.....	Data Quality Objective
ELI-Hel	Energy Laboratories, Inc., Helena, Montana
EPA.....	U.S. Environmental Protection Agency
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
LCS.....	Laboratory Control Sample
LFB.....	Laboratory Fortified Blank
MS	Matrix Spike
NA	Not Applicable
PDLG.....	Project Detection Limit Goal
QC	Quality Control
RI/FS.....	Remedial Investigation/Feasibility Study
RPD	Relative Percent Difference
SC.....	Specific Conductivity
TDS	Total Dissolved Solids

SUMMARY

East Helena private well water (groundwater) samples were collected June 5, 2009 for the ASARCO East Helena Facility Post RI/FS Long-Term Monitoring sample event. Inorganic constituents for these samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2002) and the project work plan (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories, Inc. (ELI-Hel) in Helena, Montana, under work order H09060109.

Tables containing Validation Code Definitions (Table 1) and the Summary of Qualified Data (Table 2) are located in Appendix 1. The validated database is located in Appendix 2. Field notes, chain of custodies, and laboratory reports are located in Appendices 3, 4, and 5, respectively.

Data quality objectives for this project are as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. The completeness objective for precision is 90% of the duplicate sample results within control limits. **This objective was met as 100% (299 out 299 results) of the field and laboratory duplicate results were within control limits.**
- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within control limits. The completeness objective for accuracy is 90% of the LCS and MS sample results within control limits. **This objective was met for LCS results as 100% were in control limits. However, the objective was not met for MS samples as 85.0% (34 out of 40 results) were within control limits. Overall accuracy was calculated at 92.1% (70 out of 76 results).**

***Note:** Due to the lack of LCSs for dissolved metals, fortified laboratory blanks were used to assess the accuracy for these analytes. In several cases, samples used for matrix spikes for were from unknown sources and therefore, could not be used to evaluate the accuracy of this sampling event's data. This is explained further in the following report.

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. This goal was met as **97.6% (281 out of 288 results)** of the planned data were analyzed and deemed valid.

Qualified Data Summary

Three matrix spike/matrix spike duplicate pairs were out of control limits for gold, silver, and tellurium. Seven gold and seven tellurium results were qualified “UJ” to indicate the “non-detect” results were estimated. Seven silver results were rejected due to extremely low matrix spike recoveries.

Conclusion

With the exception of the rejected results, the data collected in June 2009 for the ASARCO East Helena Post RI/FS Long Term Monitoring Program are deemed acceptable and can be used for the purposes they were intended, providing qualified data are used with caution. Of the measured results, **92.7% (267 out of 288 results)** can be used without qualification.

Data Validation Report by: Linda L. Tangen

Client Review: Jon Nickel

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to analyses for seven groundwater and quality control samples collected from June 5, 2009 for the ASARCO East Helena Post RI/FS Long-Term Monitoring Program (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories in Helena, Montana (ELI-Hel) under work order H09060109. One field blank and one field duplicate sample were included with these samples.
- Validation procedures used are generally consistent with:
 - EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2002)
 - Work Plan – Interim Measures Work Plan Addendum (ASARCO 2002)
 - Post RI/FS Long-Term Monitoring Program (ASARCO 2007)
 - Other
- Overall level of validation:
 - CLP
 - Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are qualified.
 - Visual

2. DELIVERABLES

- All laboratory document deliverables were present and accurate as specified in the CLP-Statement of Work (EPA 2001), and/or the project contract.
 - Yes
 - No
- All documentation of field procedures was provided as required.
 - Yes
 - No

3. FIELD PROCEDURES

- Samples were collected from all project-required sites.
 - Yes
 - No
- Field parameters were measured in accordance with the project work plan.
 - Yes
 - No

- Field instruments were calibrated daily and before measurements were collected.
 Yes
 No
- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
 Yes
 No
- Data entry into field books, on COCs, and on sample labels were accurate and complete.
 Yes
 No

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per event).

- Yes
 No

Reported results on the field blanks were less than the Project Detection Limit Goals (PDLGs) or reporting limit.

- Yes
 No - see notes

Notes: Several field blank detections were greater than the PDLG. However, none of the associated results were less than five times these values and therefore, flags were not required. Following is a summary of these detections.

Blank Type	Sample Code	Sample Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	Flags
Field Blank	EHR-0409-304	4/14/09	Bicarbonate	1	2	10	0*
			Total Dissolved Solids	10	16	80	0*
			Total Alkalinity	1	2	10	0*

*Note: Associated results were less than five times the blank value.

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per event).

- Yes
 No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within \pm the PDLG.

- Yes
 No

6. LABORATORY PROCEDURES

- Laboratory procedures followed**

- CLP-Statement of Work (EPA 2001)
 SW-846 (EPA 1986)
 Methods for Chemical Analysis of Water and Wastes (EPA 1983)

- Holding times met**

- Yes
 No

- Consistency with project requirements**

Analyses were carried out as required by the project work plan (ASARCO 2002 and 2007).

- Yes
 No

Project specified methods were used.

- Yes
 No

7. DETECTION LIMITS

- Reporting detection limits met PDLGs.**

- Yes
 No

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater).

Yes
 No

- All the analytes in the blank were less than the PDLG.

Yes
 No

9. LABORATORY MATRIX SPIKES

- A Matrix Spike (MS) sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

Yes
 No

- MS recoveries were within the required control limits (75-125%).

Yes
 No – see notes

Notes: Several matrix spike recoveries were low. Samples associated with matrix spike recoveries that were greater than 30% but less than 75% were qualified “UJ” to indicate the non-detected results were estimated low. The samples associated with matrix spike recoveries less than 30% were rejected (qualified “R”). Associated results are those of a similar matrix and run in the same analytical batch as the matrix spike sample. Following is a summary the matrix spike exceedances.

MS Sample Code	Sample Batch	Analysis Batch	Analysis Date	Parameter	% Recovery	# of Flags
H09060109-001B MS	H09060109	B_R130938	6/10/2009	Dis Gold	61	7
				Dis Silver	26	7 ⁽¹⁾
				Dis Terullium	65	7
H09060109-001B MSD	H09060109	B_R130938	6/10/2009	Dis Gold	61	0 ⁽²⁾
				Dis Silver	27	0 ⁽²⁾
				Dis Terullium	73	0 ⁽²⁾

*Notes:

- These results were rejected due to extremely low MS recoveries.
- Samples were already qualified for the associated MS.

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

Yes

No

- RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within \pm the PDLG.

Yes

No

11. LABORATORY CONTROL STANDARDS (LCS)

Laboratory Fortified Blanks (LFBs) were used in lieu of LCS' for metal analyses. This is acceptable for the purpose of the project.

- The reference material used for the LCS or LFB was of the correct matrix.

Yes

No

- LCS' or LFBs were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

Yes

No

- LCS recoveries were within the required control limits (80-120% or certified range).

Yes

No

12. INTERPARAMETER COMPARISON

Lab pH vs. Field pH

Lab Specific Conductivity (SC) vs. Field SC

Total Dissolved Solids (TDS) vs. Field SC

Lab pH vs. Field pH: Field and lab pH pairs were compared using laboratory duplicate criteria (refer to section 10). These comparisons were less than or equal to 13.7 RPD and therefore acceptable for the purposes of the project.

Lab SC vs. Field SC: Field and lab SC pairs were compared using laboratory duplicate criteria (refer to section 10). All comparison RPDs were greater than 20 (35.5 to 40.8 RPD).

However, the field and lab SC values were within the historical range for each site. Therefore, the results were not qualified.

TDS vs. Lab SC: The ratio of TDS to lab SC results should lie between 0.55 and 0.75. This ratio is intended to be a check on the accuracy of the TDS and lab SC measurements. In natural waters with high sulfate, the ratio may be much higher and the ratio is less accurate in dilute waters. TDS/SC ratios for this sampling event were 0.65 and 0.75, which were in line with historical data.

13. HISTORICAL COMPARISON SUMMARY

Data for this sampling event were compared with the previous five years of sampling events (from January 2004 through May 2009). One of the sites had an analyte concentration greater than three times the standard deviation from the historical mean. A table containing sampling results that were greater than three standard deviations from the historical mean is located in Appendix 1, Table 3.

14. DATA QUALITY OBJECTIVES (DQOs)

- The data quality goal was met for precision (90% of the field and laboratory duplicates were within control limits).

Yes –see the following table
 No

Precision Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	33	0	33	100.0%
Lab Duplicates	43	0	43	100.0%
Overall	76	0	76	100.0%

- The data quality goal was met for accuracy (90% of the LCS and matrix spike results were within control limits).

Yes
 No – Only 85% of the MS recoveries met control limits. See the following table.

Accuracy Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
LCS/BSS	36	0	36	100.0%
Matrix Spikes	40	6	34	85.0%
Overall	76	6	70	92.1%

- DQO target for completeness was met (the number of valid results divided by the number of possible results is 90% or above).

Yes – see the table on the following page
 No

Completeness

# of Planned Measurements	Actual # of Measurements	# of Rejected Measurements	# of Valid Measurements	Completeness
288	288	7	281	97.6%

- Samples were qualified for QC exceedances and deficiencies.

Yes – see the following table

No

Qualification of Samples

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
288	21	267	92.7%

15. CONCLUSION

With the exception of the rejected results, the data collected in June 2009 for the ASARCO East Helena Post RI/FS Long Term Monitoring Program are deemed acceptable and can be used for the purposes they were intended, providing qualified data are used with caution.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

REFERENCES

- ASARCO 2002. *Interim Measures Work Plan Addendum, East Helena Facility.* ASARCO Consulting Inc. Revised May.
- ASARCO 2007. *Post RI/FS Long-Term Monitoring Program.* ASARCO LLC. April.
- EPA 1983. *Methods for Chemical Analysis of Water and Wastes.* United States Environmental Protection Agency. March.
- EPA 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. November.
- EPA 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis.* United States Environmental Protection Agency. Document Number ILM05.2. December.
- EPA 2002. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. July.

APPENDIX 1

TABLES

TABLE 1.
DATA VALIDATION CODES AND DEFINITIONS

<u>CODE</u>	<u>DEFINITION</u>
A	Anomalous data. (Not an EPA code.)
J	The associated numerical value is an estimated quantity because quality control criteria were not met. A bias was not determined.
J-	The associated numerical value is estimated with a low bias because quality control criteria were not met.
J+	The estimated numerical value is estimated with a high bias because quality control criteria were not met.
UJ	Blank contamination. Indicates a possible high bias and/or false positive. The associated value is an estimate.
R	Quality control indicates that the data are unusable (compound may or may not be present).

Table 2. Summary of Qualified Data
East Helena Private Wells
June 2009

Station Name	Field Sample ID	Samp Date	Value	Unit	Flag	QC Type-Exceedance
	Parameter					
109 Gail						
	EHR-0609-301	6/5/2009				
	Gold (Au) DIS	< 0.01	mg/L	UJ		Matrix Spike - 61% Recovery
	Silver (Ag) DIS	< 0.005	mg/L	UJ		Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	< 0.1	mg/L	UJ		Matrix Spike - 61% Recovery
203 Gail						
	EHR-0609-302	6/5/2009				
	Gold (Au) DIS	< 0.01	mg/L	UJ		Matrix Spike - 61% Recovery
	Silver (Ag) DIS	< 0.005	mg/L	UJ		Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	< 0.1	mg/L	UJ		Matrix Spike - 61% Recovery
2489 Wylie Dr						
	EHR-0609-303	6/5/2009				
	Gold (Au) DIS	< 0.01	mg/L	UJ		Matrix Spike - 61% Recovery
	Silver (Ag) DIS	< 0.005	mg/L	UJ		Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	< 0.1	mg/L	UJ		Matrix Spike - 61% Recovery
2540 Wylie Dr						
	EHR-0609-304	6/5/2009				
	Gold (Au) DIS	< 0.01	mg/L	UJ		Matrix Spike - 61% Recovery
	Silver (Ag) DIS	< 0.005	mg/L	UJ		Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	< 0.1	mg/L	UJ		Matrix Spike - 61% Recovery
2540 Wylie Dr Irrig						
	EHR-0609-305	6/5/2009				
	Gold (Au) DIS	< 0.01	mg/L	UJ		Matrix Spike - 61% Recovery
	Silver (Ag) DIS	< 0.005	mg/L	UJ		Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	< 0.1	mg/L	UJ		Matrix Spike - 61% Recovery
	EHR-0609-306	6/5/2009				
	Gold (Au) DIS	< 0.01	mg/L	UJ		Matrix Spike - 61% Recovery
	Silver (Ag) DIS	< 0.005	mg/L	UJ		Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	< 0.1	mg/L	UJ		Matrix Spike - 61% Recovery
401 Gail						

Note: MQL =Method Quantitation Limit; SDL = Sample Detection Limit

Table 2. Summary of Qualified Data
East Helena Private Wells
June 2009

Station Name	Field Sample ID	Samp Date	Value	Unit	Flag	QC Type-Exceedance
	Parameter					
401 Gail						
	EHR-0609-300	6/5/2009				
	Gold (Au) DIS	<	0.01	mg/L	UJ	Matrix Spike - 61% Recovery
	Silver (Ag) DIS	<	0.005	mg/L	UJ	Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	<	0.1	mg/L	UJ	Matrix Spike - 61% Recovery
Field Blank						
	EHR-0609-307	6/5/2009				
	Gold (Au) DIS	<	0.01	mg/L	UJ	Matrix Spike - 61% Recovery
	Silver (Ag) DIS	<	0.005	mg/L	UJ	Matrix Spike - 26% Recovery
	Tellurium (Te) DIS	<	0.1	mg/L	UJ	Matrix Spike - 61% Recovery

Note: MQL =Method Quantitation Limit; SDL = Sample Detection Limit

Table 3. Historical Comparisons Summary~**Asarco East Helena Private Wells****June 2009***~Where this sampling event's data and historical mean difference is greater than three times the historical standard deviation.*

Station	This Sampling Event's Data		Historical Data-----					Comparison To Historical Data		
	Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low
<i>All units are in ppm unless noted otherwise.</i>										
109 Gail		6/5/2009	EHR-0609-301							
Cadmium (Cd)		DIS	0.002	14	0.001	0.001	0.0010	0.0000	2530	Highest

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

**Elev DL = An elevated reporting limit was used for the sample's value. The true value may be less than the reporting limit and therefore the value and historical average difference may not be greater than three times the standard deviation; and/or the sample's value may not be the highest historical concentration..

APPENDIX 2

DATABASE

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Table of Contents by Station Type

<u>Page</u>	<u>Station Type</u>	<u>Station Name</u>
1	Domestic Wells	109Gail
1	Domestic Wells	203Gail
3	Domestic Wells	401Gail
1	Domestic Wells	2489Wylie
3	Domestic Wells	2540 Wylie
3	Field Quality Control	FieldBlank
5	Process Water	2540Wyllr

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 7/6/2009 5:19:35 PM

C:\EnviroDataDB\Datasets\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Table of Contents By Lab Sample ID

<u>Page</u>	<u>Lab Sample ID</u>	<u>Sample ID</u>	<u>Sample Date</u>	<u>Station Name</u>
3	H09060109-001	EHR-0609-300	6/5/2009	401Gail
1	H09060109-002	EHR-0609-301	6/5/2009	109Gail
1	H09060109-003	EHR-0609-302	6/5/2009	203Gail
1	H09060109-004	EHR-0609-303	6/5/2009	2489Wylie
3	H09060109-005	EHR-0609-304	6/5/2009	2540 Wylie
5	H09060109-006	EHR-0609-305	6/5/2009	2540Wyllr
5	H09060109-007	EHR-0609-306	6/5/2009	2540Wyllr
3	H09060109-008	EHR-0609-307	6/5/2009	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 7/6/2009 5:19:35 PM

C:\EnviroDataDB\DATABASES\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Table of Contents by Sample ID

<u>Page</u>	<u>Sample ID</u>	<u>Lab Sample ID</u>	<u>Sample Date</u>	<u>Station Name</u>
3	EHR-0609-300	H09060109-001	6/5/2009	401Gail
1	EHR-0609-301	H09060109-002	6/5/2009	109Gail
1	EHR-0609-302	H09060109-003	6/5/2009	203Gail
1	EHR-0609-303	H09060109-004	6/5/2009	2489Wylie
3	EHR-0609-304	H09060109-005	6/5/2009	2540 Wylie
5	EHR-0609-305	H09060109-006	6/5/2009	2540Wyllr
5	EHR-0609-306	H09060109-007	6/5/2009	2540Wyllr
3	EHR-0609-307	H09060109-008	6/5/2009	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 7/6/2009 5:19:35 PM

C:\EnviroDataDB\Datasets\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	109 Gall	203 Gall	2489 Wyke
Water	SAMPLE DATE	6/5/2009	6/5/2009	6/5/2009
	SAMPLE TIME	00:00	00:00	00:00
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060109-002	H09060109-003	H09060109-004
	SAMPLE NUMBER	EHR-0609-301	EHR-0609-302	EHR-0609-303
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION			
	REMARKS			

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO3)	100	95	99
Calcium (Ca) (DIS)	34	33	33
Chloride (Cl)	5	4	4
Magnesium (Mg) (DIS)	8	8	8
Potassium (K) (DIS)	3	3	3
Sodium (Na) (DIS)	13	13	13
Sulfate (SO4)	57	58	55
Total Alkalinity As CaCO3	84	78	81

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	<0.002	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	0.002	<0.001	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.002	0.01	0.004
Gold (Au) (DIS)	<0.01 UJ	<0.01 UJ	<0.01 UJ
Iron (Fe) (DIS)	<0.02	<0.02	<0.02
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	0.002	0.001	<0.001
Silver (Ag) (DIS)	<0.005 UJ	<0.005 UJ	<0.005 UJ
Tellurium (Te) (DIS)	<0.1 UJ	<0.1 UJ	<0.1 UJ
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	<0.01	0.01

Physical/Fid-Lab: ppm unless noted

Oxygen (O) (DIS) (Fid)	7.74	6.55	4.2
pH	7.8	7.8	7.6
pH (Fid)	7.24	6.82	6.91
SC (umhos/cm at 25 C) (Fid)	208	195	196
SC (umhos/cm at 25 C)	304	295	295

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	109 Gall	203 Gall	2489 Wyke
Water	SAMPLE DATE	6/5/2009	6/5/2009	6/5/2009
	SAMPLE TIME	00:00	00:00	00:00
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060109-002	H09060109-003	H09060109-004
	SAMPLE NUMBER	EHR-0609-301	EHR-0609-302	EHR-0609-303
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION			
	REMARKS			

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	<10	<10	<10
TDS (Measured at 180 C)	214	200	192
Water Temperature (C) (Fld)	10.3	11.6	9.7

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	2540 Wyke	401 Gaff	Field Blank
Water	SAMPLE DATE	6/5/2009	6/5/2009	6/5/2009
	SAMPLE TIME	00:00	00:00	00:00
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060109-005	H09060109-001	H09060109-008
	SAMPLE NUMBER	EHR-0609-304	EHR-0609-300	EHR-0609-307
	TYPE	Domestic Wells	Domestic Wells	Field QC
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION			
	REMARKS			Blank

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO3)	140	150	2
Calcium (Ca) (DIS)	58	104	<1
Chloride (Cl)	7	30	<1
Magnesium (Mg) (DIS)	13	24	<1
Potassium (K) (DIS)	5	6	<1
Sodium (Na) (DIS)	17	25	<1
Sulfate (SO4)	120	270	<1
Total Alkalinity As CaCO3	120	120	2

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	0.003	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.001	0.002	<0.001
Gold (Au) (DIS)	<0.01 UJ	<0.01 UJ	<0.01 UJ
Iron (Fe) (DIS)	<0.02	0.03	<0.02
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	0.02	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	0.003	0.023	<0.001
Silver (Ag) (DIS)	<0.005 UJ	<0.005 UJ	<0.005 UJ
Tellurium (Te) (DIS)	<0.1 UJ	<0.1 UJ	<0.1 UJ
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	0.02	0.02	<0.01

Physical/Fid-Lab: ppm unless noted

Oxygen (O) (DIS) (Fid)	6.55	5.5	
pH	7.8	7.7	5.5
pH (Fid)	6.8	6.73	
SC (umho/cm at 25 C) (Fid)	323	550	
SC (umhos/cm at 25 C)	475	787	2

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix Water	STATION 2549 Wyke	401 Gall 6/5/2009	FieldBlank 6/5/2009
	SAMPLE DATE 6/5/2009	00:00	00:00
	SAMPLE TIME 00:00	ELI	ELI
	LAB ELI		
	LAB NUMBER H09060109-005	H09060109-001	H09060109-008
	SAMPLE NUMBER EHR-0609-304	EHR-0609-300	EHR-0609-307
	TYPE Domestic Wells	Domestic Wells	Field QC
	GROUP Private Wells	Private Wells	Private Wells
	DESCRIPTION		
	REMARKS		Blank

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	<10	<10	<10
TDS (Measured at 180 C)	344	592	16
Water Temperature (C) (Fld)	10	11.8	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	2540Wyllr	2540Wyllr
Water	SAMPLE DATE	6/5/2009	6/5/2009
	SAMPLE TIME	00:00	00:00
	LAB	ELI	ELI
	LAB NUMBER	H09060109-006	H09060109-007
	SAMPLE NUMBER	EHR-0609-305	EHR-0609-306
	TYPE	Process Water	Process Water
	GROUP	Private Wells	Private Wells
	DESCRIPTION		
	REMARKS	Field Duplicate	

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO ₃)	120	120
Calcium (Ca) (DIS)	62	62
Chloride (Cl)	14	14
Magnesium (Mg) (DIS)	15	15
Potassium (K) (DIS)	4	4
Sodium (Na) (DIS)	26	27
Sulfate (SO ₄)	170	170
Total Alkalinity As CaCO ₃	97	97

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003
Anemic (As) (DIS)	<0.002	0.003
Barium (Ba) (DIS)	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001
Cadmium (Cd) (DIS)	0.002	0.001
Chromium (Cr) (DIS)	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01
Copper (Cu) (DIS)	0.004	0.004
Gold (Au) (DIS)	<0.01 UJ	<0.01 UJ
Iron (Fe) (DIS)	<0.02	<0.02
Lead (Pb) (DIS)	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01
Selenium (Se) (DIS)	0.04	0.039
Silver (Ag) (DIS)	<0.005 UJ	<0.005 UJ
Tellurium (Te) (DIS)	<0.1 UJ	<0.1 UJ
Thallium (Tl) (DIS)	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	<0.01

Physical/Fld-Lab: ppm unless noted

Oxygen (O) (DIS) (Fld)	5.58	
pH	7.6	7.7
pH (Fld)	6.81	
SC (umhos/cm at 25 C) (Fld)	375	
SC (umhos/cm at 25 C)	553	557

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Well Data - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	2540WyIrr	2540WyIrr
Water	SAMPLE DATE	6/5/2009	6/5/2009
	SAMPLE TIME	00:00	00:00
	LAB	ELI	ELI
	LAB NUMBER	H09060109-006	H09060109-007
	SAMPLE NUMBER	EHR-0609-305	EHR-0609-306
	TYPE	Process Water	Process Water
	GROUP	Private Wells	Private Wells
	DESCRIPTION		
	REMARKS	Field Duplicate	

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	<10	<10
TDS (Measured at 180 C)	384	374
Water Temperature (C) (Fld)	10.7	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

APPENDIX 3
FIELD NOTES

MAY 5, 2007

Merrithy Link 10m RI/FS MONITORING
PROGRAM - RESIDENTIAL WELLS

FIELD STANDARDIZATION OF HORIBA

STANDARD VALUE	METER READING
pH	4.00 SEL
CONDUCTIVITY	4490 umhos/cm
D.O.	0.23% / l

[JENSEN]

401 GAIL STREET

EHR - 0609 - 300

DAVE JENSEN PRESENT DURING SAMPLE
COLLECTION FROM YARD GARDEN SITE
AFTER 10 MINUTE PURGE

pH	6.73 SEL
CONDUCTIVITY	550 umhos/cm
D.O.	5.50 mg/l
TEMP	11.8°C

[Nordstrom]

101 GAIL STREET

EHR - 0609 - 301

SAMPLE COLLECTED FROM IRRIGATION
SITE NEAR GARAGE AFTER 10 MINUTE PURGE

pH	7.24 SEL
CONDUCTIVITY	208 umhos/cm
D.O.	7.74 mg/l
TEMP	10.3°C

FOLEY

203 GAIL STREET
EHR - 0609 - 302SAMPLE COLLECTED FROM NORTH FACING
HOME/YARD SITE AFTER 10 MINUTE PURGE

pH	6.82 SEL
CONDUCTIVITY	195 umhos/cm
D.O.	6.55 mg/l
TEMP	11.6°C

IRRIGATION SYSTEM WATERING WEST SIDE
GRASS JUST PRIOR TO SAMPLE COLLECTION.

[VENETZ]

2487 WHITE DRIVE
EHR - 0607 - 303SPECIAL SAMPLE COLLECTED AT THE
REQUEST OF MAT VENETZ. PREVIOUSLY
SAMPLED APRIL 2008WELL SITE LOCATED WEST OF HOME
SAMPLE COLLECTED FROM DRAINAGE GARDEN
SITE AFTER 10 MINUTE PURGE
IRRIGATION SYSTEM WAS WATERING LAWN
JUST PRIOR TO SAMPLE COLLECTION

pH	6.91 SEL
CONDUCTIVITY	116 umhos/cm
D.O.	4.20 mg/l
TEMP	9.7°C

SIMAL

DRINKING WATER WELL

2540 Wythe Drive

EHR-0609-304

SAMPLE COLLECTED FROM EAST FAWN.

SPACO ATTACHED TO HCM AFTER

10 MINUTE PURGE

P.H.

CONDUCTIVITY

6.80 S.G.

323 umhos/cm

D.D.

6.55 mg/l

TEMP

10.0 °C

SIMAL

IRRIGATION WELL

EHR-0609-305

EHR-0609-306 DUPLICATE

IRRIGATION WELL WAS WATERING

LAND WHEN ARRIVED TO COLLECT

SAMPLE. SAMPLE COLLECTED FROM

2" HOSE ABOVE 20 FEET FROM WELL

HEAD AFTER 10 MINUTE PURGE

P.H.

CONDUCTIVITY

6.81 S.G.

375 umhos/cm

D.D.

TEMP

5.58 mg/l

10.7 °C

EHR-0609-307 FIELD BLANK

APPENDIX 4
CHAIN OF CUSTODIES



Chain of Custody and Analytical Request Record

Page 1 of 2

PLEASE PRINT - Provide as much information as possible.

Company Name: ASARCO LLC		Project Name, PWS, Permit, Etc. MONTHLY DVS LONG TERM MONITORING - JUNE 2009		Sample Origin State: MT	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>		
Report Mail Address: P.O. BOX 1230 EAST HELENA, MT 59685		Contact Name: JON NICKEL	Phone/Fax: 221-4529	Email:	Sampler: (Please Print) NICKEL		
Invoice Address:		Invoice Contact & Phone:		Purchase Order:	Quote/Bottle Order:		
Special Report/Formats - ELI must be notified prior to sample submittal for the following:		Number of Containers Sample Type: AWS VBO Air Water Solids Biosolids Vegetation Other	ANALYSIS REQUESTED			Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Shipped by: Jon Nickel
<input type="checkbox"/> DW <input type="checkbox"/> GSA <input type="checkbox"/> POTW/MMT <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____			<input type="checkbox"/> A2LA <input type="checkbox"/> EDD/EDT(Electronic Data) Format: _____	<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC	Physical Parameters		
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Normal Turnaround (TAT)	R U S H	Comments: <i>Collection time bottle</i>	Received Temp: 8.4 °C
EHR-0609-301 RAW	6/5/09		GW	X X			On ice: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
EHR-0609-301 METAL				X			Custody Seal: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
EHR-0609-301 RAW				XX			Bottles/ Coolers: B C
EHR-0609-301 METAL				X			Intact: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
EHR-0609-302 RAW				XX			Signature Match: Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
EHR-0609-302 METAL				X			
EHR-0609-303 RAW				XX			
EHR-0609-303 METAL				X			
EHR-0609-304 RAW				XX			
EHR-0609-304 METAL				X			
Custody Record MUST be Signed		Relinquished by (print): Jon Nickel	Date/Time: 6/5/09/1530	Signature: Jon Nickel	Received by (print):	Date/Time:	Signature:
		Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____		Lab Disposal: _____		Received by Laboratory:	Date/Time:	Signature:	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

This serves as notice of this possibility. All sub-contract data will be clearly noted on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.



Chain of Custody and Analytical Request Record

Page 2 of 2

PLEASE PRINT - Provide as much information as possible.

Company Name: ASARCO		Project Name, PWS, Permit, Etc.: MONT NY RIVES LONG TERM MONITORING - JUNE 2009		Sample Origin State: MT	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>			
Report Mail Address: P.O. BOX 1230 EAST HELENA, MT 59635		Contact Name: _____ Phone/Fax: _____ Email: _____		Sampler: (Please Print) NICKEL				
Invoice Address: _____		Invoice Contact & Phone: _____		Purchase Order: _____	Quote/Bottle Order: _____			
Special Report/Formats – ELI must be notified prior to sample submittal for the following:		Number of Containers Sample Type: <input type="checkbox"/> AWS <input type="checkbox"/> VBO <input type="checkbox"/> Air Water Solids <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other	ANALYSIS REQUESTED		Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page	Shipped by: Marcel Carrier ID(s): _____		
<input type="checkbox"/> DW <input type="checkbox"/> GSA <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____			<input type="checkbox"/> A2LA <input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____	<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC			Physical Appearance (N)	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	CONTAINERS GW	SEE ATTACHED	Normal Turnaround (TAT)	R U S H	Comments:
EHR-0609-305 RAW	6/5/09		GW	X X	X X			Received Temp 8.4 °C
EHR-0609-305 METAL				X				On ice: Yes <input checked="" type="checkbox"/>
EHR-0609-306 RAW				XX				Custody Seal: Y <input checked="" type="checkbox"/>
EHR-0609-306 METAL				X				Bottles/ Coolers: B C
EHR-0609-307 RAW				XX				Intact: Y <input checked="" type="checkbox"/>
EHR-0609-307 METAL				X				Signature Match: Y <input checked="" type="checkbox"/>
7								
8								
9								
10								
Custody Record MUST be Signed	Relinquished by (print): JCN/NICKEL	Date/Time: 6/5/09 11:53:00	Signature: 	Received by (print):	Date/Time:	Signature:		
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:		
				Received by Laboratory:	Date/Time:	Signature:		
	Sample Disposal: Return to Client:	Lab Disposal:	KOKANEE PERLUS G.S. OG 15.32 KJ					

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

This serves as notice of this possibility. All sub-contract data will be clearly noted on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

**TABLE 3. SEMI-ANNUAL/ANNUAL RESIDENTIAL/CAMU MONITORING
PROGRAMS – GROUNDWATER AND SURFACE WATER PARAMETER LIST**

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (mg/L)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Common Ions			
Alkalinity	Titrimetric	SM 2320 B	1
Bicarbonate	Titrimetric	SM 2320 B	1
Sulfate	Turbidimetric	SM 4500SO4 E	1
Chloride	Colorimetric	SM 4500 CL C	1
Calcium	ICP	200.7	5
Magnesium	ICP	200.7	5
Sodium	ICP	200.7	5
Potassium	ICP	200.7	5
Arsenic and Metals (Groundwater -Dissolved, Surface Water Dissolved and Total)			
Arsenic	ICP/ICP-MS	200.7/200.8	0.002
Cadmium	ICP/ICP-MS	200.7/200.8	0.001
Copper	ICP/ICP-MS	200.7/200.8	0.001
Iron	ICP/ICP-MS	200.7/200.8	0.02
Manganese	ICP/ICP-MS	200.7/200.8	0.01
Lead	ICP/ICP-MS	200.7/200.8	0.005
Selenium	ICP/ICP-MS	200.7/200.8	0.001
Zinc	ICP/ICP-MS	200.7/200.8	0.02
Supplemental Trace Metals (Groundwater -Dissolved, Surface water Dissolved and Total)			
Aluminum	ICP/ICP-MS	200.7/200.8	0.1
Antimony	ICP/ICP-MS	200.7/200.8	0.003
Barium	ICP/ICP-MS	200.7/200.8	0.1
Beryllium	ICP/ICP-MS	200.7/200.8	0.001
Chromium	ICP/ICP-MS	200.7/200.8	0.001
Cobalt	ICP/ICP-MS	200.7/200.8	0.01
Gold	ICP/ICP-MS	200.7/200.8	0.01
Mercury	ICP/ICP-MS	200.8/E245.1	0.001
Nickel	ICP/ICP-MS	200.7/200.8	0.01
Silver	ICP/ICP-MS	200.7/200.8	0.005
Tellurium	ICP/ICP-MS	200.7/200.8	0.1
Thallium	ICP/ICP-MS	200.7/200.8	0.001
Vanadium	ICP/ICP-MS	200.7/200.8	0.01
Field Parameters			
SWL	Electric Tape	IIF-SOP-10	0.01 ft
Temperature	PH Meter	IIF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	IIF-SOP-22	NA
pH	pH Meter	IIF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	IIF-SOP-79	NA

APPENDIX 5
LABORATORY REPORT



ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

June 19, 2009

Jon Nickel
Asarco LLC
PO Box 1230
East Helena, MT 59635-

Workorder No.: H09060109 Quote ID: H409 - Semi-Annual Residential CAMU Monitoring

Project Name: Monthly RI/FS Long Term Monitoring June 2009

Energy Laboratories Inc received the following 8 samples for Asarco LLC on 6/5/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09060109-001	EHR-0609-300	06/05/09 7:35	06/05/09	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09060109-002	EHR-0609-301	06/05/09 8:10	06/05/09	Groundwater	Same As Above
H09060109-003	EHR-0609-302	06/05/09 9:00	06/05/09	Groundwater	Same As Above
H09060109-004	EHR-0609-303	06/05/09 9:30	06/05/09	Groundwater	Same As Above
H09060109-005	EHR-0609-304	06/05/09 11:00	06/05/09	Groundwater	Same As Above
H09060109-006	EHR-0609-305	06/05/09 11:30	06/05/09	Groundwater	Same As Above
H09060109-007	EHR-0609-306	06/05/09 11:45	06/05/09	Groundwater	Same As Above
H09060109-008	EHR-0609-307	06/05/09 12:30	06/05/09	Groundwater	Same As Above

BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS

Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C ($\pm 2^{\circ}\text{C}$)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Jonathan D. Hager

Report Approved By: _____

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena,
ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.06.20 16:21:46 06'00'



LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-300
Lab ID: H09060109-001
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 07:35 **Date Received:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	06/09/09 12:14 / JG		PH_090609A : 11	090609A-PH-W	
Conductivity	787	umhos/cm		1		A2510 B	06/08/09 14:34 / std		COND_090608A : 7190608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:10 / JG		SOLIDS_090608A : 18	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	592	mg/L		10		A2540 C	06/08/09 09:46 / JG		SOLIDS_090608B : 54	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	06/15/09 12:06 / JG		TITTR_090615A : 13	090615A-ALK-W	
Bicarbonate as HCO3	150	mg/L		1		A2320 B	06/15/09 12:06 / JG		TITTR_090615A : 13	090615A-ALK-W	
Chloride	30	mg/L		1		E300.0	06/17/09 15:45 / hm		IC101-H_090616A : 100	R54350	
Sulfate	270	mg/L		1		E300.0	06/17/09 15:45 / hm		IC101-H_090616A : 100	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Arsenic	0.003	mg/L		0.002		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Calcium	104	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Copper	0.002	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Iron	0.03	mg/L		0.02		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Magnesium	24	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Manganese	0.02	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Potassium	6	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22	B_R130938	
Selenium	0.023	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1	B_R131155	

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

Definitions:



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-300
Lab ID: H09060109-001
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 07:35 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Sodium	25	mg/L		1		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 15:44 / eli-b		SUB-B130938 : 22		B_R130938
Zinc	0.02	mg/L		0.01		E200.8	06/15/09 23:51 / eli-b		SUB-B131155 : 1		B_R131155

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-301
Lab ID: H09060109-002
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 08:10 **Date Received:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/09/09 12:20 / JG		PH_090609A : 12	090609A-PH-W	
Conductivity	304	umhos/cm		1		A2510 B	06/08/09 14:35 / sld		COND_090608A : 7290608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:10 / JG		SOLIDS_090608A : 19	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	214	mg/L		10		A2540 C	06/08/09 09:47 / JG		SOLIDS_090608B : 55	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	84	mg/L		1		A2320 B	06/17/09 10:32 / JG		TITTR_090617A : 3	090617A-ALK-W	
Bicarbonate as HCO3	100	mg/L		1		A2320 B	06/17/09 10:32 / JG		TITTR_090617A : 3	090617A-ALK-W	
Chloride	5	mg/L		1		E300.0	06/17/09 16:01 / hm		IC101-H_090616A : 101	R54350	
Sulfate	57	mg/L		1		E300.0	06/17/09 16:01 / hm		IC101-H_090616A : 101	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Cadmium	0.002	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Calcium	34	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Copper	0.002	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Magnesium	8	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Potassium	3	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23	B_R130938	
Selenium	0.002	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2	B_R131155	

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-301
Lab ID: H09060109-002
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 08:10 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938
Sodium	13	mg/L		1		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/15/09 23:55 / eli-b		SUB-B131155 : 2		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:05 / eli-b		SUB-B130938 : 23		B_R130938

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-302
Lab ID: H09060109-003
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:00 **Date Received:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/09/09 12:32 / JG		PH_090609A : 14		090609A-PH-W
Conductivity	295	umhos/cm		1		A2510 B	06/08/09 14:37 / sld		COND_090608A : 7490608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:11 / JG		SOLIDS_090608A : 20	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	200	mg/L		10		A2540 C	06/08/09 09:48 / JG		SOLIDS_090608B : 58	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	78	mg/L		1		A2320 B	06/17/09 10:23 / JG		TITTR_090617A : 4		090617A-ALK-W
Bicarbonate as HCO3	95	mg/L		1		A2320 B	06/17/09 10:23 / JG		TITTR_090617A : 4		090617A-ALK-W
Chloride	4	mg/L		1		E300.0	06/17/09 16:18 / hm		IC101-H_090616A : 102		R54350
Sulfate	58	mg/L		1		E300.0	06/17/09 16:18 / hm		IC101-H_090616A : 102		R54350
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Calcium	33	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Copper	0.010	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Magnesium	8	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Potassium	3	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Selenium	0.001	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-302
Lab ID: H09060109-003
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:00 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Sodium	13	mg/L		1		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:16 / eli-b		SUB-B131155 : 3		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:13 / eli-b		SUB-B130938 : 24		B_R130938

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-303
Lab ID: H09060109-004
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:30 **Date Received:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	06/09/09 12:35 / JG		PH_090609A : 15	090609A-PH-W	
Conductivity	295	umhos/cm		1		A2510 B	06/08/09 14:38 / sld		COND_090608A : 7590608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:11 / JG		SOLIDS_090608A : 21	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	192	mg/L		10		A2540 C	06/08/09 09:48 / JG		SOLIDS_090608B : 59	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	81	mg/L		1		A2320 B	06/17/09 10:53 / JG		TITTR_090617A : 6	090617A-ALK-W	
Bicarbonate as HCO3	99	mg/L		1		A2320 B	06/17/09 10:53 / JG		TITTR_090617A : 6	090617A-ALK-W	
Chloride	4	mg/L		1		E300.0	06/17/09 17:07 / hm		IC101-H_090616A : 105	R54350	
Sulfate	55	mg/L		1		E300.0	06/17/09 17:07 / hm		IC101-H_090616A : 105	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Calcium	33	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Copper	0.004	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Magnesium	8	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Potassium	3	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25	B_R130938	
Selenium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4	B_R131155	

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Definitions:



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-303
Lab ID: H09060109-004
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 09:30 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25		B_R130938
Sodium	13	mg/L		1		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:17 / eli-b		SUB-B130938 : 25		B_R130938
Zinc	0.01	mg/L		0.01		E200.8	06/16/09 00:20 / eli-b		SUB-B131155 : 4		B_R131155

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-304
Lab ID: H09060109-005
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:00 DateReceived: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/09/09 12:42 / JG		PH_090609A : 16	090609A-PH-W	
Conductivity	475	umhos/cm		1		A2510 B	06/08/09 14:38 / std		COND_090608A : 7690608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:12 / JG		SOLIDS_090608A : 22	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	344	mg/L		10		A2540 C	06/08/09 09:49 / JG		SOLIDS_090608B : 60	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	06/17/09 11:13 / JG		TITTR_090617A : 7	090617A-ALK-W	
Bicarbonate as HCO3	140	mg/L		1		A2320 B	06/17/09 11:13 / JG		TITTR_090617A : 7	090617A-ALK-W	
Chloride	7	mg/L		1		E300.0	06/17/09 17:23 / hm		IC101-H_090616A : 106	R54350	
Sulfate	120	mg/L		1		E300.0	06/17/09 17:23 / hm		IC101-H_090616A : 106	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Calcium	58	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Copper	0.001	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Magnesium	13	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Potassium	5	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26	B_R130938	
Selenium	0.003	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5	B_R131155	

Report RL - Analyte reporting limit.

Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-304
Lab ID: H09060109-005
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:00 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26		B_R130938
Sodium	17	mg/L		1		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:21 / eli-b		SUB-B130938 : 26		B_R130938
Zinc	0.02	mg/L		0.01		E200.8	06/16/09 00:24 / eli-b		SUB-B131155 : 5		B_R131155

Report RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-305
Lab ID: H09060109-006
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:30 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	06/09/09 12:48 / JG		PH_090609A : 17	090609A-PH-W	
Conductivity	553	umhos/cm		1		A2510 B	06/08/09 14:39 / sld		COND_090608A : 7790608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:12 / JG		SOLIDS_090608A : 23	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	384	mg/L		10		A2540 C	06/08/09 09:50 / JG		SOLIDS_090608B : 61	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		1		A2320 B	06/17/09 11:26 / JG		TITTR_090617A : 8	090617A-ALK-W	
Bicarbonate as HCO3	120	mg/L		1		A2320 B	06/17/09 11:26 / JG		TITTR_090617A : 8	090617A-ALK-W	
Chloride	14	mg/L		1		E300.0	06/17/09 17:40 / hm		IC101-H_090616A : 107	R54350	
Sulfate	170	mg/L		1		E300.0	06/17/09 17:40 / hm		IC101-H_090616A : 107	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Cadmium	0.002	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Calcium	62	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Copper	0.004	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Magnesium	15	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Potassium	4	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27	B_R130938	
Selenium	0.040	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6	B_R131155	

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-305
Lab ID: H09060109-006
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:30 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938
Sodium	26	mg/L		1		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:28 / eli-b		SUB-B131155 : 6		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:25 / eli-b		SUB-B130938 : 27		B_R130938

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-306
Lab ID: H09060109-007
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:45 **DateReceived:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	06/09/09 12:52 / JG		PH_090609A : 19	090609A-PH-W	
Conductivity	557	umhos/cm		1		A2510 B	06/08/09 14:40 / sld		COND_090608A : 7890608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:13 / JG		SOLIDS_090608A : 24	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	374	mg/L		10		A2540 C	06/08/09 09:51 / JG		SOLIDS_090608B : 62	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		1		A2320 B	06/17/09 11:37 / JG		TITTR_090617A : 9	090617A-ALK-W	
Bicarbonate as HCO3	120	mg/L		1		A2320 B	06/17/09 11:37 / JG		TITTR_090617A : 9	090617A-ALK-W	
Chloride	14	mg/L		1		E300.0	06/17/09 17:56 / hm		IC101-H_090616A : 108	R54350	
Sulfate	170	mg/L		1		E300.0	06/17/09 17:56 / hm		IC101-H_090616A : 108	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Arsenic	0.003	mg/L		0.002		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Cadmium	0.001	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Calcium	62	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Copper	0.004	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Magnesium	15	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Potassium	4	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28	B_R130938	
Selenium	0.039	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7	B_R131155	

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-306
Lab ID: H09060109-007
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 11:45 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938
Sodium	27	mg/L		1		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:44 / eli-b		SUB-B131155 : 7		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:31 / eli-b		SUB-B130938 : 28		B_R130938

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-307
Lab ID: H09060109-008
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 12:30 **DateReceived:** 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.5	s.u.		0.1		A4500-H B	06/09/09 12:55 / JG		PH_090609A : 20	090609A-PH-W	
Conductivity	2	umhos/cm		1		A2510 B	06/08/09 14:44 / sld		COND_090608A : 8090608A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/08/09 10:13 / JG		SOLIDS_090608A : 25	090608A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	16	mg/L		10		A2540 C	06/08/09 09:51 / JG		SOLIDS_090608B : 63	090608A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	06/17/09 11:41 / JG		TITTR_090617A : 10	090617A-ALK-W	
Bicarbonate as HCO3	2	mg/L		1		A2320 B	06/17/09 11:41 / JG		TITTR_090617A : 10	090617A-ALK-W	
Chloride	ND	mg/L		1		E300.0	06/17/09 18:13 / hm		IC101-H_090616A : 109	R54350	
Sulfate	ND	mg/L		1		E300.0	06/17/09 18:13 / hm		IC101-H_090616A : 109	R54350	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Aluminum	ND	mg/L		0.1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Antimony	ND	mg/L		0.003		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Arsenic	ND	mg/L		0.002		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Barium	ND	mg/L		0.1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Beryllium	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Cadmium	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Calcium	ND	mg/L		1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Chromium	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Cobalt	ND	mg/L		0.01		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Copper	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Gold	ND	mg/L		0.01		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Iron	ND	mg/L		0.02		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Lead	ND	mg/L		0.005		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Magnesium	ND	mg/L		1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Manganese	ND	mg/L		0.01		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Mercury	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	
Nickel	ND	mg/L		0.01		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Potassium	ND	mg/L		1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29	B_R130938	
Selenium	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8	B_R131155	

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0609-307
Lab ID: H09060109-008
Matrix: Groundwater

Project: Monthly RI/FS Long Term Monitoring June 2009
Collection Date: 06/05/09 12:30 Date Received: 06/05/09
Report Date: 06/19/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29		B_R130938
Sodium	ND	mg/L		1		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29		B_R130938
Thallium	ND	mg/L		0.001		E200.8	06/16/09 00:48 / eli-b		SUB-B131155 : 8		B_R131155
Vanadium	ND	mg/L		0.01		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29		B_R130938
Zinc	ND	mg/L		0.01		E200.7	06/10/09 16:35 / eli-b		SUB-B130938 : 29		B_R130938

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090608A-COND-PROBE

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: COND_090608A: 1		SampType: Laboratory Control Sample				Sample ID: LCS1_090608A				Method: A2510 B		
Analysis Date: 06/08/09 13:07		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		1410	1.0	1412		100	90	110				

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: COND_090608A: 61		SampType: Continuing Calibration Verification Standard				Sample ID: CCV5_090608A				Method: A2510 B		
Analysis Date: 06/08/09 14:19		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		716	1.0	718		100	90	110				

Associated samples: H09060109-001A; H09060109-002A

Run ID :Run Order: COND_090608A: 73		SampType: Continuing Calibration Verification Standard				Sample ID: CCV6_090608A				Method: A2510 B		
Analysis Date: 06/08/09 14:36		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		711	1.0	718		99	90	110				

Associated samples: H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: COND_090608A: 79		SampType: Sample Duplicate				Sample ID: H09060109-007ADUP				Method: A2510 B		
Analysis Date: 06/08/09 14:42		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		549	1.0						557.3	1.5	10	

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090608A-SLDS-TDS-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: SOLIDS_090608B: 1 SampType: Method Blank Sample ID: MBLK1_090608A Method: A2540 C

Analysis Date: 06/08/09 09:01 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Solids, Total Dissolved TDS @ 180 C 6 1.0

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: SOLIDS_090608B: 2 SampType: Laboratory Control Sample Sample ID: LCS1_090608A Method: A2540 C

Analysis Date: 06/08/09 09:02 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Solids, Total Dissolved TDS @ 180 C 1000 10 1000 6 100 90 110

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: SOLIDS_090608B: 56 SampType: Sample Matrix Spike Sample ID: H09060109-002AMS Method: A2540 C

Analysis Date: 06/08/09 09:47 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Solids, Total Dissolved TDS @ 180 C 2160 10 2000 214 97 80 120

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: SOLIDS_090608B: 57 SampType: Sample Matrix Spike Duplicate Sample ID: H09060109-002AMSD Method: A2540 C

Analysis Date: 06/08/09 09:48 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Solids, Total Dissolved TDS @ 180 C 2160 10 2000 214 97 80 120 2162 0.2 10

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: SOLIDS_090608B: 64 SampType: Sample Duplicate Sample ID: H09060109-008ADUP Method: A2540 C

Analysis Date: 06/08/09 09:52 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
------------	--------	-----	-----------	-------------	------	----------	-----------	-------------	------	----------	------

Solids, Total Dissolved TDS @ 180 C 16.0 10 16 0 20

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090608A-SLDS-TSS-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order:	SOLIDS_090608A: 1	SampType: Method Blank				Sample ID: MBLK1_090608A				Method: A2540 D		
Analysis Date:	06/08/09 09:58	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1										

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order:	SOLIDS_090608A: 2	SampType: Laboratory Control Sample				Sample ID: LCS1_090608A				Method: A2540 D		
Analysis Date:	06/08/09 09:58	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1930	10	2000			97	70	130				

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order:	SOLIDS_090608A: 26	SampType: Sample Duplicate				Sample ID: H09060109-008ADUP				Method: A2540 D		
Analysis Date:	06/08/09 10:14	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								10		

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090609A-PH-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: PH_090609A: 1		SampType: Laboratory Control Sample				Sample ID: LCS1_090609A			Method: A4500-H B		
Analysis Date: 06/09/09 11:16		Units: s.u.		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.03	0.10	7		100	99	101				

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: PH_090609A: 13		SampType: Continuing Calibration Verification Standard				Sample ID: CCV1_090609A			Method: A4500-H B		
Analysis Date: 06/09/09 12:22		Units: s.u.		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		100	99	101				

Associated samples: H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: PH_090609A: 18		SampType: Sample Duplicate				Sample ID: H09060109-006ADUP			Method: A4500-H B		
Analysis Date: 06/09/09 12:49		Units: s.u.		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.54	0.10						7.55	0.1	2	

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090615A-ALK-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: TITTR_090615A: 1		SampType: Method Blank				Sample ID: MBLK1_090615A				Method: A2320 B		
Analysis Date: 06/15/09 09:09		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		2		1								
Associated samples: H09060109-001A												
Run ID :Run Order: TITTR_090615A: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090615A				Method: A2320 B		
Analysis Date: 06/15/09 09:19		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		570	4.0	600	1.996	95	90	110				
Associated samples: H09060109-001A												
Run ID :Run Order: TITTR_090615A: 8		SampType: Sample Duplicate				Sample ID: H09060107-004ADUP				Method: A2320 B		
Analysis Date: 06/15/09 10:35		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		120	4.0						117.8	0	20	
Bicarbonate as HCO3		140	4.0						143.7	0	20	
Associated samples: H09060109-001A												
Run ID :Run Order: TITTR_090615A: 14		SampType: Sample Matrix Spike				Sample ID: H09060109-001AMS				Method: A2320 B		
Analysis Date: 06/15/09 12:18		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		690	4.0	600	123.8	94	90	110				
Associated samples: H09060109-001A												
Run ID :Run Order: TITTR_090615A: 15		SampType: Sample Matrix Spike Duplicate				Sample ID: H09060109-001AMSD				Method: A2320 B		
Analysis Date: 06/15/09 12:24		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		690	4.0	600	123.8	94	90	110	688.6	0.3	20	
Associated samples: H09060109-001A												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090615A-ALK-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: TITTR_090615A: 16	SampType: Continuing Calibration Verification Standard	Sample ID: CCV1_090615A	Method: A2320 B
Analysis Date: 06/15/09 12:33	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result	PQL	SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPD Limit Qual
Alkalinity, Total as CaCO3	1000	4.0	1000 101 90 110

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090617A-ALK-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: TITTR_090617A: 1	SampType: Method Blank				Sample ID: MBLK1_090617A				Method: A2320 B		
Analysis Date: 06/17/09 09:15	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: TITTR_090617A: 2	SampType: Laboratory Control Sample				Sample ID: LCS1_090617A				Method: A2320 B		
Analysis Date: 06/17/09 09:27	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	580	4.0	600		97	90	110				

Associated samples: H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: TITTR_090617A: 5	SampType: Sample Duplicate				Sample ID: H09060109-003ADUP				Method: A2320 B		
Analysis Date: 06/17/09 10:41	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	78	4.0							77.84	0	20
Bicarbonate as HCO3	95	4.0							94.97	0	20

Associated samples: H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: TITTR_090617A: 11	SampType: Sample Matrix Spike				Sample ID: H09060109-008AMS				Method: A2320 B		
Analysis Date: 06/17/09 11:52	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	570	4.0	600	1.996	95	90	110				

Associated samples: H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: TITTR_090617A: 12	SampType: Sample Matrix Spike Duplicate				Sample ID: H09060109-008AMSD				Method: A2320 B		
Analysis Date: 06/17/09 11:59	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	570	4.0	600	1.996	94	90	110	570.9	0.4	20	

Associated samples: H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: 090617A-ALK-W

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: TITTR_090617A: 16

SampType: Continuing Calibration Verification Standard Sample ID: CCV1_090617A

Method: A2320 B

Analysis Date: 06/17/09 12:25

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 1

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Alkalinity, Total as CaCO₃

1000

4.0

1000

101

90

110

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: B_R130938

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: **SUB-B130938: 2**

SampType: Continuing Calibration Verification Standard

Sample ID: ICV

Method: **E200.7**Analysis Date: **06/10/09 13:52**Units: **mg/L**

Prep Info:

Prep Date:

Prep Method:

Analytes **15**

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Tellurium	2.58	0.10	2.5	103	95	105
Aluminum	2.44	0.10	2.5	98	95	105
Barium	2.57	0.10	2.5	103	95	105
Calcium	24.7	1.0	25	99	95	105
Cobalt	2.42	0.020	2.5	97	95	105
Gold	2.55	0.0043	2.5	102	95	105
Iron	2.62	0.030	2.5	105	95	105
Magnesium	25.4	1.0	25	102	95	105
Manganese	2.42	0.010	2.5	97	95	105
Nickel	2.60	0.050	2.5	104	95	105
Potassium	24.6	1.0	25	98	95	105
Silver	0.494	0.010	0.5	99	95	105
Sodium	25.1	1.0	25	100	95	105
Vanadium	2.40	0.10	2.5	96	95	105
Zinc	2.58	0.010	2.5	103	95	105

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: **SUB-B130938: 8**SampType: **Method Blank**Sample ID: **MB-SPDIS090610A**Method: **E200.7**Analysis Date: **06/10/09 12:23**Units: **mg/L**

Prep Info:

Prep Date:

Prep Method:

Analytes **15**

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Tellurium	ND	0.02
Aluminum	ND	0.008
Barium	0.0005	0.0001
Calcium	0.03	0.009
Cobalt	ND	0.001
Gold	ND	0.004
Iron	ND	0.002
Magnesium	ND	0.01
Manganese	ND	0.0003
Nickel	ND	0.002
Potassium	ND	0.01
Silver	ND	0.002
Sodium	ND	0.03

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: B_R130938

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: SUB-B130938: 8		SampType: Method Blank				Sample ID: MB-SPDIS090610A				Method: E200.7		
Analysis Date: 06/10/09 12:23		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes <u>15</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Vanadium	ND	0.003										
Zinc	0.002	0.002										

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: SUB-B130938: 9		SampType: Laboratory Fortified Blank				Sample ID: LFB-SPDIS090610A				Method: E200.7		
Analysis Date: 06/10/09 12:27		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes <u>15</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Tellurium	0.948	0.10	1		95	85	115					
Aluminum	4.93	0.10	5		99	85	115					
Barium	0.955	0.10	1	0.00049	95	85	115					
Calcium	48.3	1.0	50	0.02951	97	85	115					
Cobalt	0.970	0.020	1		97	85	115					
Gold	1.05	0.0045	1		105	85	115					
Iron	5.09	0.030	5		102	85	115					
Magnesium	50.6	1.0	50		101	85	115					
Manganese	4.84	0.010	5		97	85	115					
Nickel	1.04	0.050	1		104	85	115					
Potassium	50.2	1.0	50		100	85	115					
Silver	0.497	0.010	0.5		99	85	115					
Sodium	49.9	1.0	50		100	85	115					
Vanadium	0.954	0.10	1		95	85	115					
Zinc	1.03	0.010	1	0.00208	103	85	115					

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: SUB-B130938: 30		SampType: Sample Matrix Spike				Sample ID: H09060109-001B				Method: E200.7		
Analysis Date: 06/10/09 15:57		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes <u>15</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Tellurium	0.654	0.018	1		65	70	130				S	
Aluminum	4.98	0.10	5		100	70	130					
Barium	1.03	0.10	1	0.0616	96	70	130					
Calcium	146	1.0	50	104.2	83	70	130					
Cobalt	0.962	0.010	1		96	70	130					

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits N - Analyte concentration was not sufficiently high to calculate RPD
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: B_R130938

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: SUB-B130938: 30

SampType: Sample Matrix Spike

Sample ID: H09060109-001B

Method: E200.7

Analysis Date: 06/10/09 15:57

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 15

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPD Limit

Qual

Gold	0.612	0.010	1	61	70	130				S
Iron	4.92	0.030	5	0.02741	98	70	130			
Magnesium	72.7	1.0	50	24.06	97	70	130			
Manganese	4.75	0.010	5	0.01766	95	70	130			
Nickel	1.01	0.010	1		101	70	130			
Potassium	56.0	1.0	50	6.44	99	70	130			
Silver	0.131	0.0050	0.5	26	70	130				S
Sodium	75.1	1.0	50	24.52	101	70	130			
Vanadium	0.943	0.10	1		94	70	130			
Zinc	1.03	0.010	1	0.02302	100	70	130			

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: SUB-B130938: 31

SampType: Sample Matrix Spike Duplicate

Sample ID: H09060109-001B

Method: E200.7

Analysis Date: 06/10/09 16:01

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 15

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPD Limit

Qual

Tellurium	0.725	0.018	1	73	70	130	0.6541	10	20	
Aluminum	5.00	0.10	5	100	70	130	4.981	0.3	20	
Barium	1.01	0.10	1	0.0616	94	70	130	1.026	2	20
Calcium	149	1.0	50	104.2	89	70	130	145.6	2.2	20
Cobalt	0.980	0.010	1		98	70	130	0.962	1.8	20
Gold	0.606	0.010	1	61	70	130	0.6118	1	20	S
Iron	5.04	0.030	5	0.02741	100	70	130	4.92	2.4	20
Magnesium	73.2	1.0	50	24.06	98	70	130	72.72	0.7	20
Manganese	4.79	0.010	5	0.01766	95	70	130	4.751	0.8	20
Nickel	1.03	0.010	1		103	70	130	1.009	2.2	20
Potassium	55.0	1.0	50	6.44	97	70	130	56.03	1.9	20
Silver	0.134	0.0050	0.5	27	70	130	0.1312	1.9	20	S
Sodium	75.0	1.0	50	24.52	101	70	130	75.09	0.1	20
Vanadium	0.958	0.10	1		96	70	130	0.9435	1.5	20
Zinc	1.05	0.010	1	0.02302	103	70	130	1.028	2.2	20

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: B_R131155

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: SUB-B131155: 9	SampType: Method Blank	Sample ID: LRB	Method: E200.8
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Analysis Date: 06/15/09 12:39

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes **11**

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Antimony	ND	5E-05
Arsenic	0.0001	3E-05
Beryllium	ND	1E-05
Cadmium	ND	1E-05
Chromium	ND	0.0002
Copper	ND	8E-05
Lead	ND	8E-06
Mercury	ND	8E-06
Selenium	ND	0.0002
Thallium	1E-05	8E-06
Zinc	ND	0.0001

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: SUB-B131155: 10	SampType: Laboratory Fortified Blank	Sample ID: LFB	Method: E200.8
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Analysis Date: 06/15/09 12:51

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes **11**

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Antimony	0.051	0.050	0.05	102	85	115	
Arsenic	0.051	0.0050	0.05	0.0001	102	85	115
Beryllium	0.045	0.0010	0.05		91	85	115
Cadmium	0.050	0.0010	0.05		99	85	115
Chromium	0.049	0.010	0.05		98	85	115
Copper	0.046	0.010	0.05		91	85	115
Lead	0.050	0.010	0.05		99	85	115
Mercury	0.00097	0.0010	0.001		97	85	115
Selenium	0.051	0.0050	0.05		101	85	115
Thallium	0.050	0.10	0.05	0.000013	100	85	115
Zinc	0.049	0.010	0.05		99	85	115

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: B_R131155

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: SUB-B131155: 11

SampType: Initial Calibration Verification Standard

Sample ID: QCS - 090602A,090401E,
ME080814C

Method: E200.8

Analysis Date: 06/15/09 21:27

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 11

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Antimony

0.049

0.050

0.05

98

90

110

Arsenic

0.051

0.0050

0.05

102

90

110

Beryllium

0.025

0.0010

0.025

99

90

110

Cadmium

0.025

0.0010

0.025

100

90

110

Chromium

0.049

0.010

0.05

99

90

110

Copper

0.049

0.010

0.05

99

90

110

Lead

0.050

0.010

0.05

99

90

110

Mercury

0.0019

0.0010

0.002

96

90

110

Selenium

0.052

0.0050

0.05

104

90

110

Thallium

0.051

0.10

0.05

102

90

110

Zinc

0.052

0.010

0.05

104

90

110

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: SUB-B131155: 12

SampType: Sample Matrix Spike

Sample ID: B09060913-006BMS

Method: E200.8

Analysis Date: 06/16/09 00:32

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 11

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Antimony

0.0508

0.0050

0.05

0.00009

101

70

130

Arsenic

0.0523

0.0050

0.05

0.00163

101

70

130

Beryllium

0.0509

0.0010

0.05

102

70

130

Cadmium

0.0511

0.0010

0.05

0.00154

99

70

130

Chromium

0.0511

0.010

0.05

0.00058

101

70

130

Copper

0.0536

0.010

0.05

0.00365

100

70

130

Lead

0.0500

0.010

0.05

0.00003

100

70

130

Mercury

0.000980

0.0010

0.001

0.00001

97

70

130

Selenium

0.0896

0.0050

0.05

0.04024

99

70

130

Thallium

0.0505

0.0050

0.05

101

70

130

Zinc

0.0538

0.010

0.05

0.00245

103

70

130

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: B_R131155

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: SUB-B131155: 13		SampType: Sample Matrix Spike Duplicate				Sample ID: B09060913-006BMSD				Method: E200.8		
Analysis Date: 06/16/09 00:36		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.0513	0.0050	0.05	0.00009	102	70	130	0.05075	1.1	20	
Arsenic		0.0519	0.0050	0.05	0.00163	101	70	130	0.05227	0.7	20	
Beryllium		0.0522	0.0010	0.05		104	70	130	0.0509	2.6	20	
Cadmium		0.0528	0.0010	0.05	0.00154	102	70	130	0.05109	3.3	20	
Chromium		0.0508	0.010	0.05	0.00058	100	70	130	0.05111	0.7	20	
Copper		0.0541	0.010	0.05	0.00365	101	70	130	0.05362	0.9	20	
Lead		0.0502	0.010	0.05	0.00003	100	70	130	0.04998	0.4	20	
Mercury		0.00100	0.0010	0.001	0.00001	99	70	130	0.00098		20	
Selenium		0.0896	0.0050	0.05	0.04024	99	70	130	0.08955	0.1	20	
Thallium		0.0507	0.0050	0.05		101	70	130	0.05051	0.4	20	
Zinc		0.0540	0.010	0.05	0.00245	103	70	130	0.05377	0.4	20	

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Run ID :Run Order: SUB-B131155: 44		SampType: Initial Calibration Verification Standard				Sample ID: QCS - 090602A,090401E, 080814C				Method: E200.8		
Analysis Date: 06/15/09 10:41		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.049	0.050	0.05		98	90	110				
Arsenic		0.051	0.0050	0.05		101	90	110				
Beryllium		0.025	0.0010	0.025		98	90	110				
Cadmium		0.025	0.0010	0.025		99	90	110				
Chromium		0.049	0.010	0.05		99	90	110				
Copper		0.049	0.010	0.05		98	90	110				
Lead		0.050	0.010	0.05		99	90	110				
Mercury		0.0019	0.0010	0.002		95	90	110				
Selenium		0.052	0.0050	0.05		103	90	110				
Thallium		0.050	0.10	0.05		100	90	110				
Zinc		0.051	0.010	0.05		103	90	110				

Associated samples: H09060109-001B; H09060109-002B; H09060109-003B; H09060109-004B; H09060109-005B; H09060109-006B; H09060109-007B; H09060109-008B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: R54350

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: IC101-H_090616A: 13

SampType: Initial Calibration Verification Standard

Sample ID: ICV

Method: E300.0

Analysis Date: 06/16/09 15:40

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit

Qual

Chloride

2.5

1.0

2.5

100

90

110

Sulfate

9.7

1.0

10

97

90

110

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 14

SampType: Laboratory Control Sample

Sample ID: LCS

Method: E300.0

Analysis Date: 06/16/09 15:56

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit

Qual

Chloride

92

1.0

87.47

106

90

110

Sulfate

27

1.0

28.53

0.468

95

90

110

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 15

SampType: Laboratory Fortified Blank

Sample ID: LFB

Method: E300.0

Analysis Date: 06/16/09 16:12

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit

Qual

Chloride

5.2

1.0

5

103

90

110

Sulfate

9.7

1.0

10

0.468

93

90

110

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 16

SampType: Method Blank

Sample ID: MBLK

Method: E300.0

Analysis Date: 06/16/09 16:29

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit

Qual

Chloride

ND

0.05

Sulfate

0.5

0.1

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 89

SampType: Continuing Calibration Verification Standard

Sample ID: CCV

Method: E300.0

Analysis Date: 06/17/09 12:44

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit

Qual

Chloride

25

1.0

25

102

90

110

Sulfate

51

1.0

50

102

90

110

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: R54350

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: IC101-H_090616A: 89

SampType: Continuing Calibration Verification Standard Sample ID: CCV

Method: E300.0

Analysis Date: 06/17/09 12:44

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A

Run ID :Run Order: IC101-H_090616A: 94

SampType: Sample Matrix Spike

Sample ID: H09060107-004A MS

Method: E300.0

Analysis Date: 06/17/09 14:06

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Chloride

27

1.0

25

0.929

105

90

110

Sulfate

300

1.0

50

244.8

90

110

A

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 95

SampType: Sample Matrix Spike Duplicate

Sample ID: H09060107-004A MSD

Method: E300.0

Analysis Date: 06/17/09 14:23

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Chloride

27

1.0

25

0.929

105

90

110

27.07

0.3

20

Sulfate

300

1.0

50

244.8

90

110

297.7

0

20

A

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 103

SampType: Continuing Calibration Verification Standard Sample ID: CCV

Method: E300.0

Analysis Date: 06/17/09 16:34

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Chloride

26

1.0

25

102

90

110

Sulfate

51

1.0

50

102

90

110

Associated samples: H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 110

SampType: Sample Matrix Spike

Sample ID: H09060109-008A MS

Method: E300.0

Analysis Date: 06/17/09 18:29

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Chloride

26

1.0

25

105

90

110

Sulfate

52

1.0

50

104

90

110

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 19-Jun-09

Work Order: H09060109

BatchID: R54350

Project: Monthly RI/FS Long Term Monitoring June

Run ID :Run Order: IC101-H_090616A: 111		SampType: Sample Matrix Spike Duplicate				Sample ID: H09060109-008A MSD				Method: E300.0		
Analysis Date: 06/17/09 18:45		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		26	1.0	25		104	90	110	26.3	0.9	20	
Sulfate		52	1.0	50		104	90	110	52.1	0.2	20	

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 137		SampType: Sample Matrix Spike				Sample ID: H09060177-018B MS				Method: E300.0		
Analysis Date: 06/18/09 01:52		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		26	1.0	25		104	90	110				
Sulfate		52	1.0	50	0.437	103	90	110				

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Run ID :Run Order: IC101-H_090616A: 138		SampType: Sample Matrix Spike Duplicate				Sample ID: H09060177-018B MSD				Method: E300.0		
Analysis Date: 06/18/09 02:09		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		26	1.0	25		103	90	110	25.99	0.6	20	
Sulfate		52	1.0	50	0.437	102	90	110	51.76	0.3	20	

Associated samples: H09060109-001A; H09060109-002A; H09060109-003A; H09060109-004A; H09060109-005A; H09060109-006A; H09060109-007A; H09060109-008A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount

Energy Laboratories Inc

Workorder Receipt Checklist



H09060109

Asarco LLC

Login completed by: Roxanne L. Tubbs

Date and Time Received: 6/5/2009 3:32 PM

Reviewed by: Elizabeth Ulrich

Received by: rit

Reviewed Date: 6/8/2009 1:17:00 PM

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature:	8.4°C		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Contact and Corrective Action Comments:

Collection times for all samples taken from containers. 6/5/09 rt

VALIDATION SUMMARY
ASARCO EAST HELENA POST RI/FS LONG-TERM
MONITORING PROGRAM
EAST HELENA RESIDENTIAL GROUNDWATER
INORGANIC ANALYSES
May 2009 SAMPLE EVENT
ENERGY LABORATORY WORK ORDER NOS.
H09050213, H09050267, and H09050340

Prepared for:
Mr. Jon Nickel
ASARCO Incorporated
PO Box 1230
East Helena, MT 59635

Prepared by:
Linda L. Tangen
6900 Cherry Blossom Lane
Albuquerque, NM 87111

June 2009

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GLOSSARY OF TERMS

CLP	Contract Laboratory Program
COC	Chain of Custody
CRDL	Contract Required Detection Limit
DI	Deionized Water
DIS.....	Dissolved
DQO	Data Quality Objective
ELI-Hel.....	Energy Laboratories, Inc., Helena, Montana
EPA.....	U.S. Environmental Protection Agency
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
LCS.....	Laboratory Control Sample
LFB.....	Laboratory Fortified Blank
MS	Matrix Spike
NA	Not Applicable
PDLG.....	Project Detection Limit Goal
QC.....	Quality Control
RI/FS.....	Remedial Investigation/Feasibility Study
RPD	Relative Percent Difference
SC	Specific Conductivity
TDS	Total Dissolved Solids

SUMMARY

East Helena private well water (groundwater) samples were collected May 13 through 27, 2009 for the ASARCO East Helena Facility Post RI/FS Long-Term Monitoring sample event. Inorganic constituents for these samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2002) and the project work plan (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories, Inc. (ELI-Hel) in Helena, Montana, under work orders H09050213, H09050267, and H09050340.

Tables containing Validation Code Definitions (Table 1) and the Summary of Qualified Data (Table 2) are located in Appendix 1. The validated database is located in Appendix 2. Field notes, chain of custodies, and laboratory reports are located in Appendices 4, 5, and 6, respectively.

Data quality objectives for this project are as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. The completeness objective for precision is 90% of the duplicate sample results within control limits. **This objective was met as 100% (299 out 299 results) of the field and laboratory duplicate results were within control limits.**
- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within control limits. The completeness objective for accuracy is 90% of the LCS and MS sample results within control limits. **This objective was met as 100% of the LCS results and 98.9% (172 out of 174 results) of the MS results were within control limits.**

***Note:** Due to the lack of LCSs for dissolved metals, fortified laboratory blanks were used to assess the accuracy for these analytes. In several cases, samples used for matrix spikes for were from unknown sources and therefore, could not be used to evaluate the accuracy of this sampling event's data. This is explained further in the following report.

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. This goal was met as 98.4% (963 out of 979 results) of the planned data were analyzed and deemed valid.

Qualified Data Summary

Three silver results were rejected due to extremely low matrix spike recoveries.

Conclusion

With the exception of the rejected results, the data collected in May 2009 for the ASARCO East Helena Post RI/FS Long Term Monitoring Program are deemed acceptable and can be used for the purposes they were intended, providing qualified data are used with caution. Of the measured results, 99.7% (963 out of 966 results) can be used without qualification.

Data Validation Report by: Linda L. Tangen

Client Review: Jon Nickel

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to analyses for four groundwater and quality control samples collected from May 13 through 27, 2009 for the ASARCO East Helena Post RI/FS Long-Term Monitoring Program (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories in Helena, Montana (ELI-Hel) under work orders: H09050213, H09050267, and H09050340. Three field blank and three field duplicate samples were included with these samples.
- Validation procedures used are generally consistent with:
 - EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2002)
 - Work Plan – Interim Measures Work Plan Addendum (ASARCO 2002)
 - Post RI/FS Long-Term Monitoring Program (ASARCO 2007)
 - Other
- Overall level of validation:
 - CLP
 - Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are flagged.
 - Visual

2. DELIVERABLES

- All laboratory document deliverables were present and accurate as specified in the CLP-Statement of Work (EPA 2001), and/or the project contract.
 - Yes
 - No
- All documentation of field procedures was provided as required.
 - Yes
 - No

3. FIELD PROCEDURES

- Samples were collected from all project-required sites.
 - Yes
 - No
- Field parameters were measured in accordance with the project work plan.
 - Yes
 - No

- Field instruments were calibrated daily and before measurements were collected.
 Yes
 No
- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
 Yes
 No
- Data entry into field books, on COCs, and on sample labels were accurate and complete.
 Yes
 No

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per event).

- Yes
 No

Reported results on the field blanks were less than the Project Detection Limit Goals (PDLGs) or reporting limit.

- Yes
 No - see notes

Notes: Several field blank detections were greater than the PDLG. However, none of the associated results were less than five times these values and therefore, flags were not required. Following is a summary of these detections.

Blank Type	Sample Code	Sample Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	Flags
Field Blank	EHR-0509-314	5/13/09	Bicarbonate	1	2	10	0*
			Total Alkalinity	1	2	10	0*
Field Blank	EHR-0509-321	5/19/09	Bicarbonate	1	2	10	0*
			Total Alkalinity	1	2	10	0*
Field Blank	EHR-0509-326	5/27/09	Bicarbonate	1	2	10	0*
			Total Alkalinity	1	2	10	0*

*Note: Associated results were less than five times the blank value.

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per event).

Yes

No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within \pm the PDLG.

Yes

No

6. LABORATORY PROCEDURES

- Laboratory procedures followed**

CLP-Statement of Work (EPA 2001)

SW-846 (EPA 1986)

Methods for Chemical Analysis of Water and Wastes (EPA 1983)

- Holding times met**

Yes

No

- Consistency with project requirements**

Analyses were carried out as required by the project work plan (ASARCO 2002 and 2007).

Yes

No

Project specified methods were used.

Yes

No

7. DETECTION LIMITS

- Reporting detection limits met PDLGs.**

Yes

No

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater).

Yes
 No

- All the analytes in the blank were less than the PDLG.

Yes
 No

9. LABORATORY MATRIX SPIKES

- A Matrix Spike (MS) sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

Yes
 No – see notes

Notes: Samples from unknown sources were used as matrix spikes for metals for work order H09050340. LCS and continuing calibration recoveries were used to evaluate the accuracy for parameters associated with these MS samples. Qualification of results is not required by the work plan (Hydrometrics 2002 and 2007).

- MS recoveries were within the required control limits (75-125%).

Yes
 No – see notes

Notes: Two matrix spike recoveries for silver were extremely low (<30%). Therefore, the results associated with these recoveries were rejected (flagged "R"). Associated results of similar matrix and run in the same analytical batch as the matrix spike sample. Following is a summary the matrix spike exceedances.

MS Sample Code	Sample Batch	Analysis Batch	Analysis Date	Parameter	% Recovery	# of Flags
H09050267-004B MS	H09050267	B_R129915	5/22/2009	Silver	16	0*
H09050267-004B MSD	H09050267	B_R129915	5/22/2009	Silver	14	3

* Notes: Associated results were already flagged for MS Duplicate exceedance.

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

Yes
 No

- RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within \pm the PDLG.

Yes
 No

11. LABORATORY CONTROL STANDARDS (LCS)

Laboratory Fortified Blanks (LFBs) were used in lieu of LCS' for metal analyses. This is acceptable for the purpose of the project.

- The reference material used for the LCS or LFB was of the correct matrix.

Yes
 No

- LCS' or LFBs were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

Yes
 No

- LCS recoveries were within the required control limits (80-120% or certified range).

Yes
 No

12. INTERPARAMETER COMPARISON

Lab pH vs. Field pH
 Lab Specific Conductivity (SC) vs. Field SC
 Total Dissolved Solids (TDS) vs. Field SC

Lab pH vs. Field pH: Field and lab pH pairs were compared using laboratory duplicate criteria (refer to section 10). These comparisons were less than or equal to 9.3 RPD and therefore acceptable for the purposes of the project.

Lab SC vs. Field SC: Field and lab SC pairs were compared using laboratory duplicate criteria (refer to section 10). All comparison RPDs were greater than 20 (35.1 to 54.6 RPD). However, the field and lab SC values within the historical range for each site. Therefore, the results were not qualified.

TDS vs. Lab SC: The ratio of TDS to lab SC results should lie between 0.55 and 0.75. This ratio is intended to be a check on the accuracy of the TDS and lab SC measurements. In natural waters with high sulfate, the ratio may be much higher and the ratio is less accurate in dilute waters. TDS/SC ratios for this sampling event were 0.57 and 0.75, which were in line with historical data.

13. HISTORICAL COMPARISON SUMMARY

Data for this sampling event were compared with the previous five years of sampling events (from January 2004 through May 2009). None of the sites had analyte concentrations greater than three times the standard deviation from the historical mean. Numerous results met these criteria. However, in most instances, this was due to the limited number of historical results or that the detection limit was lowered for this sampling event.

14. DATA QUALITY OBJECTIVES (DQOs)

- The data quality goal was met for precision (90% of the field and laboratory duplicates were within control limits).

Yes – see the following table
 No

Precision Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	99	0	99	100.0%
Lab Duplicates	200	0	200	100.0%
Overall	299	0	299	100.0%

- The data quality goal was met for accuracy (90% of the LCS and matrix spike results were within control limits).

Yes – see the following table
 No

Accuracy Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
LCS' and LFBs	121	0	121	100.0%
Matrix Spikes	174	2	172	98.9%
Overall	295	2	293	99.3%

- DQO target for completeness was met (the number of valid results divided by the number of possible results is 90% or above).

Yes – see the table on the following page
 No

Completeness

# of Planned Measurements	Actual # of Measurements	# of Rejected Measurements	# of Valid Measurements	Completeness
979	966	3	963	98.4%

- Samples were qualified for QC exceedances and deficiencies.

Yes – see the following table

No

Qualification of Samples

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
966	3	963	99.7%

15. CONCLUSION

The data collected in May 2009 for the ASARCO East Helena Interim Measures semi-annual sample event are deemed acceptable and can be used for the purposes they were intended.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

REFERENCES

- ASARCO 2002. *Interim Measures Work Plan Addendum, East Helena Facility.* ASARCO Consulting Inc. Revised May.
- ASARCO 2007. *Post RI/FS Long-Term Monitoring Program.* ASARCO LLC. April.
- EPA 1983. *Methods for Chemical Analysis of Water and Wastes.* United States Environmental Protection Agency. March.
- EPA 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. November.
- EPA 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis.* United States Environmental Protection Agency. Document Number ILM05.2. December.
- EPA 2002. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. July.

APPENDIX 1

TABLES

TABLE 1.
DATA VALIDATION CODES AND DEFINITIONS

<u>CODE</u>	<u>DEFINITION</u>
A	Anomalous data. (Not an EPA code.)
J	The associated numerical value is an estimated quantity because quality control criteria were not met. A bias was not determined.
J-	The associated numerical value is estimated with a low bias because quality control criteria were not met.
J+	The estimated numerical value is estimated with a high bias because quality control criteria were not met.
UJ	Blank contamination. Indicates a possible high bias and/or false positive. The associated value is an estimate.
R	Quality control indicates that the data are unusable (compound may or may not be present).

Table 2. Summary of Qualified Data
East Helena Private Wells
May 2009

Station Name	Field Sample ID	Samp Date	Parameter	Value	Unit	Flag	QC Type-Exceedance
401 Gail							
	EHR-0509-315	5/19/2009	Silver (Ag) DIS	< 0.005	mg/L	R	Matrix Spike - 14% Recovery
701 Manlove							
	EHR-0509-318	5/19/2009	Silver (Ag) DIS	< 0.005	mg/L	R	Matrix Spike - 14% Recovery
	EHR-0509-319	5/19/2009	Silver (Ag) DIS	< 0.005	mg/L	R	Matrix Spike - 14% Recovery

Note: PQL = Practical Quantitation Limit

Table 3. Historical Comparisons Summary~
Asarco East Helena Private Wells
May 2009

~Where this sampling event's data and historical mean difference is greater than three times the historical standard deviation.

Station	This Sampling Event's Data		Historical Data					Comparison To Historical Data		
	Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low
<i>All units are in ppm unless noted otherwise.</i>										
1 Gail		5/13/2009	EHR-0509-300							
Antimony (Sb)	DIS	<	0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)	DIS	<	0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Selenium (Se)	DIS	<	0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest
Thallium (Tl)	DIS	<	0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
105 Gail		5/13/2009	EHR-0509-303							
Antimony (Sb)	DIS	<	0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)	DIS	<	0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Selenium (Se)	DIS	<	0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest
Thallium (Tl)	DIS	<	0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
107 E Groschell		5/19/2009	EHR-0509-316							
Antimony (Sb)	DIS	<	0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)	DIS	<	0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Thallium (Tl)	DIS	<	0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
109 Gail		5/27/2009	EHR-0509-325							
Antimony (Sb)	DIS	<	0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Copper (Cu)	DIS	<	0.001	13	0.004	0.004	0.0040	0.0000	1890	Lowest
Iron (Fe)	DIS	0.04	10	0.02	0.02	0.0200	0.0000	2270	Highest	
Mercury (Hg)	DIS	<	0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Selenium (Se)	DIS	<	0.001	11	0.005	0.005	0.0050	0.0000	1820	Lowest
Thallium (Tl)	DIS	<	0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
126 E Clinton		5/27/2009	EHR-0509-324							
Oxygen (O) (DIS) (Fld)		9.37	2	7.99	8.15	8.0700	0.1131	3.83	Highest	
203 Gail		5/13/2009	EHR-0509-302							
Antimony (Sb)	DIS	<	0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

**Elev DL = An elevated reporting limit was used for the sample's value. The true value may be less than the reporting limit and therefore the value and historical average difference may not be greater than three times the standard deviation; and/or the sample's value may not be the highest historical concentration..

Table 3. Historical Comparisons Summary~
Asarco East Helena Private Wells
May 2009

~Where this sampling event's data and historical mean difference is greater than three times the historical standard deviation.

Station	This Sampling Event's Data		Historical Data					Comparison To Historical Data		
	Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low
<i>All units are in ppm unless noted otherwise.</i>										
203 Gail		5/13/2009	EHR-0509-302							
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
210 E Groschell		5/19/2009	EHR-0509-317							
Antimony (Sb)		DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Copper (Cu)		DIS	0.002	6	0.004	0.004	0.0040	0.0000	1200	Lowest
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
2540 Wylie Dr		5/13/2009	EHR-0509-309							
pH			7.6	3	7.2	7.2	7.2000	0.0012	114	Highest
3 Gail		5/13/2009	EHR-0509-301							
Antimony (Sb)		DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Arsenic (As)		DIS	0.003	5	0.002	0.002	0.0020	0.0000	1170	Highest
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Selenium (Se)		DIS	0.002	2	0.005	0.005	0.0050	0.0000	1010	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
303 Thurman		5/13/2009	EHR-0509-306							
Antimony (Sb)		DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
401 Gail		5/19/2009	EHR-0509-315							
Antimony (Sb)		DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
407 E Porter		5/13/2009	EHR-0509-305							

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

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Table 3. Historical Comparisons Summary~
Asarco East Helena Private Wells
May 2009

~Where this sampling event's data and historical mean difference is greater than three times the historical standard deviation.

Station	This Sampling Event's Data		Historical Data					Comparison To Historical Data		
	Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low
<i>All units are in ppm unless noted otherwise.</i>										
407 E Porter		5/13/2009	EHR-0509-305							
Antimony (Sb)	DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest	
Mercury (Hg)	DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest	
Thallium (Tl)	DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest	
9 Gail		5/13/2009	EHR-0509-304							
Antimony (Sb)	DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest	
Mercury (Hg)	DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest	
Selenium (Se)	DIS	< 0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest	
Thallium (Tl)	DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest	
Amchem4		5/19/2009	EHR-0509-320							
Antimony (Sb)	DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest	
Mercury (Hg)	DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest	
Selenium (Se)	DIS	< 0.001	3	0.005	0.005	0.0050	0.0000	1560	Lowest	
Thallium (Tl)	DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest	
EHC1		5/13/2009	EHR-0509-311							
Antimony (Sb)	DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest	
Copper (Cu)	DIS	0.002	4	0.004	0.004	0.0040	0.0000	1140	Lowest	
Mercury (Hg)	DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest	
Selenium (Se)	DIS	< 0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest	
Thallium (Tl)	DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest	
EHC3		5/13/2009	EHR-0509-312							
Antimony (Sb)	DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest	
Copper (Cu)	DIS	0.002	3	0.004	0.004	0.0040	0.0000	1070	Lowest	
Mercury (Hg)	DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest	
Selenium (Se)	DIS	< 0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest	

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

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Table 3. Historical Comparisons Summary~
Asarco East Helena Private Wells
May 2009

~Where this sampling event's data and historical mean difference is greater than three times the historical standard deviation.

Station	This Sampling Event's Data		Historical Data					Comparison To Historical Data		
	Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low
<i>All units are in ppm unless noted otherwise.</i>										
EHC3		5/13/2009	EHR-0509-312							
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
Pele Park #1										
		5/13/2009	EHR-0509-308							
Antimony (Sb)		DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Selenium (Se)		DIS	< 0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest
Pele Park #2										
		5/13/2009	EHR-0509-307							
Antimony (Sb)		DIS	< 0.003	2	0.005	0.005	0.0050	0.0000	676	Lowest
Mercury (Hg)		DIS	< 0.001	2	0.006	0.006	0.0060	0.0000	1460	Lowest
Selenium (Se)		DIS	< 0.001	2	0.005	0.005	0.0050	0.0000	1350	Lowest
Thallium (Tl)		DIS	< 0.001	2	0.002	0.002	0.0020	0.0000	927	Lowest

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

**Elev DL = An elevated reporting limit was used for the sample's value. The true value may be less than the reporting limit and therefore the value and historical average difference may not be greater than three times the standard deviation; and/or the sample's value may not be the highest historical concentration..

APPENDIX 2

DATABASE

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Table of Contents by Station Type

<u>Page</u>	<u>Station Type</u>	<u>Station Name</u>
1	Domestic Wells	001Gail
1	Domestic Wells	003Gail
1	Domestic Wells	009Gail
3	Domestic Wells	105Gail
3	Domestic Wells	107Gros
3	Domestic Wells	109Gail
5	Domestic Wells	126Clint
5	Domestic Wells	203Gail
5	Domestic Wells	210Gros
7	Domestic Wells	303Thurman
9	Domestic Wells	401Gail
9	Domestic Wells	407Porter
9	Domestic Wells	701Mnlv
7	Domestic Wells	2540Wylie
11	Domestic Wells	Amchem4
11	Domestic Wells	EHC1
11	Domestic Wells	EHC2
13	Domestic Wells	EHC3
13	Domestic Wells	PelePk1
13	Domestic Wells	PelePk2
15	Field Quality Control	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Table of Contents By Lab Sample ID

<u>Page</u>	<u>Lab Sample ID</u>	<u>Sample ID</u>	<u>Sample Date</u>	<u>Station Name</u>
1	H09050213-001	EHR-0509-300	5/13/2009	001Gail
1	H09050213-002	EHR-0509-301	5/13/2009	003Gail
5	H09050213-003	EHR-0509-302	5/13/2009	203Gail
3	H09050213-004	EHR-0509-303	5/13/2009	105Gail
1	H09050213-005	EHR-0509-304	5/13/2009	009Gail
9	H09050213-006	EHR-0509-305	5/13/2009	407Porter
7	H09050213-007	EHR-0509-306	5/13/2009	303Thurman
13	H09050213-008	EHR-0509-307	5/13/2009	PelePk2
13	H09050213-009	EHR-0509-308	5/13/2009	PelePk1
7	H09050213-010	EHR-0509-309	5/13/2009	2540Wylie
11	H09050213-011	EHR-0509-310	5/13/2009	EHC2
11	H09050213-012	EHR-0509-311	5/13/2009	EHC1
13	H09050213-013	EHR-0509-312	5/13/2009	EHC3
13	H09050213-014	EHR-0509-313	5/13/2009	EHC3
15	H09050213-015	EHR-0509-314	5/13/2009	FieldBlank
9	H09050267-001	EHR-0509-315	5/19/2009	401Gail
3	H09050267-002	EHR-0509-316	5/19/2009	107Gros
5	H09050267-003	EHR-0509-317	5/19/2009	210Gros
9	H09050267-004	EHR-0509-318	5/19/2009	701Mnlv
9	H09050267-005	EHR-0509-319	5/19/2009	701Mnlv
11	H09050267-006	EHR-0509-320	5/19/2009	Amchem4
15	H09050267-007	EHR-0509-321	5/19/2009	FieldBlank
7	H09050340-001	EHR-0509-322	5/27/2009	2540Wylie
7	H09050340-002	EHR-0509-323	5/27/2009	2540Wylie
5	H09050340-003	EHR-0509-324	5/27/2009	126Clint
3	H09050340-004	EHR-0509-325	5/27/2009	109Gail
15	H09050340-005	EHR-0509-326	5/27/2009	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Table of Contents by Sample ID

<u>Page</u>	<u>Sample ID</u>	<u>Lab Sample ID</u>	<u>Sample Date</u>	<u>Station Name</u>
1	EHR-0509-300	H09050213-001	5/13/2009	001Gail
1	EHR-0509-301	H09050213-002	5/13/2009	003Gail
5	EHR-0509-302	H09050213-003	5/13/2009	203Gail
3	EHR-0509-303	H09050213-004	5/13/2009	105Gail
1	EHR-0509-304	H09050213-005	5/13/2009	009Gail
9	EHR-0509-305	H09050213-006	5/13/2009	407Porter
7	EHR-0509-306	H09050213-007	5/13/2009	303Thurman
13	EHR-0509-307	H09050213-008	5/13/2009	PelePk2
13	EHR-0509-308	H09050213-009	5/13/2009	PelePk1
7	EHR-0509-309	H09050213-010	5/13/2009	2540Wylie
11	EHR-0509-310	H09050213-011	5/13/2009	EHC2
11	EHR-0509-311	H09050213-012	5/13/2009	EHC1
13	EHR-0509-312	H09050213-013	5/13/2009	EHC3
13	EHR-0509-313	H09050213-014	5/13/2009	EHC3
15	EHR-0509-314	H09050213-015	5/13/2009	FieldBlank
9	EHR-0509-315	H09050267-001	5/19/2009	401Gail
3	EHR-0509-316	H09050267-002	5/19/2009	107Gros
5	EHR-0509-317	H09050267-003	5/19/2009	210Gros
9	EHR-0509-318	H09050267-004	5/19/2009	701Mnlv
9	EHR-0509-319	H09050267-005	5/19/2009	701Mnlv
11	EHR-0509-320	H09050267-006	5/19/2009	Amchem4
15	EHR-0509-321	H09050267-007	5/19/2009	FieldBlank
7	EHR-0509-322	H09050340-001	5/27/2009	2540Wylie
7	EHR-0509-323	H09050340-002	5/27/2009	2540Wylie
5	EHR-0509-324	H09050340-003	5/27/2009	126Clint
3	EHR-0509-325	H09050340-004	5/27/2009	109Gail
15	EHR-0509-326	H09050340-005	5/27/2009	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	001Gail	003Gail	009Gail
Water	SAMPLE DATE	5/13/2009	5/13/2009	5/13/2009
	SAMPLE TIME	07:20	07:40	08:40
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050213-001	H09050213-002	H09050213-005
	SAMPLE NUMBER	EHR-0509-300	EHR-0509-301	EHR-0509-304
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION	Io Fld pH-Instr. Err	Io Fld pH-Instr. Err	Io Fld pH-Instr. Err
	REMARKS			

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO ₃)	94	95	99
Calcium (Ca) (DIS)	30	30	32
Chloride (Cl)	5	5	5
Magnesium (Mg) (DIS)	7	7	7
Potassium (K) (DIS)	3	3	3
Sodium (Na) (DIS)	13	13	13
Sulfate (SO ₄)	51	53	50
Total Alkalinity As CaCO ₃	77	78	81

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	0.003	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
Chromium (Cr) (DIS)	0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.055	0.023	0.067
Gold (Au) (DIS)	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	0.05	0.03	<0.02
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	<0.001	0.002	<0.001
Silver (Ag) (DIS)	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	<0.01	<0.01

Physical/Fld-Lab: ppm unless noted

Oxygen (O) (DIS) (Fld)	9.3	5.67	7.05
pH	7.5	7.4	7.4
SC (umhos/cm at 25 C) (Fld)	200	200	198
SC (umhos/cm at 25 C)	291	298	294
Total Suspended Solids	<10	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	001Gal	003Gal	009Gal
Water	SAMPLE DATE	5/13/2009	5/13/2009	5/13/2009
	SAMPLE TIME	07:20	07:40	08:40
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050213-001	H09050213-002	H09050213-005
	SAMPLE NUMBER	EHR-0509-300	EHR-0509-301	EHR-0509-304
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION	lo Fld pH-Instr. Err	lo Fld pH-Instr. Err	lo Fld pH-Instr. Err
	REMARKS			

Physical/Fid-Lab: ppm unless noted

TDS (Measured at 180 C)	172	175	178
Water Temperature (C) (Fld)	7.2	7.1	9.7

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	105Gall	107Gros	109Gall
Water	SAMPLE DATE	5/13/2009	5/19/2009	5/27/2009
	SAMPLE TIME	08:20	08:50	11:30
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050213-004	H09050267-002	H09050340-004
	SAMPLE NUMBER	EHR-0509-303	EHR-0509-316	EHR-0509-325
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION	to Fid pH-Instr. Err		
	REMARKS			

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO3)	110	130	100
Calcium (Ca) (DIS)	32	40	29
Chloride (Cl)	4	8	4
Magnesium (Mg) (DIS)	7	9	7
Potassium (K) (DIS)	3	8	2
Sodium (Na) (DIS)	13	32	11
Sulfate (SO4)	52	110	54
Total Alkalinity As CACO3	87	100	84

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	0.031	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	0.001	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.019	0.013	<0.001
Gold (Au) (DIS)	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	<0.02	<0.02	0.04
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	<0.001	0.011	<0.001
Silver (Ag) (DIS)	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	0.01	<0.01

Physical/Fid-Lab: ppm unless noted

Oxygen (O) (DIS) (Fid)	6.46	6.3	8.4
pH	7.5	7.4	7.4
pH (Fid)		6.93	7.33
SC (umhos/cm at 25 C) (Fid)	202	311	200
SC (umhos/cm at 25 C)	306	457	295

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	105Gal	107Grea	109Gal
Water	SAMPLE DATE	5/13/2009	5/19/2009	5/27/2009
	SAMPLE TIME	08:20	08:50	11:30
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050213-004	H09050267-002	H09050340-004
	SAMPLE NUMBER	EHR-0509-303	EHR-0509-316	EHR-0509-325
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION	io Fld pH-Instr. Err		
	REMARKS			

Physical/Fid-Lab: ppm unless noted

Total Suspended Solids	<10	<10	<10
TDS (Measured at 180 C)	185	296	197
Water Temperature (C) (Fid)	10.3	10.4	10.3

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	126Clint	203Gall	210Gros
Water	SAMPLE DATE	5/27/2009	5/13/2009	5/19/2009
	SAMPLE TIME	10:40	08:00	09:15
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050340-003	H09050213-003	H09050267-003
	SAMPLE NUMBER	EHR-0509-324	EHR-0509-302	EHR-0509-317
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION		lo Fld pH-Instr. Err	
	REMARKS			

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO ₃)	110	95	120
Calcium (Ca) (DIS)	30	30	41
Chloride (Cl)	8	4	7
Magnesium (Mg) (DIS)	6	7	9
Potassium (K) (DIS)	12	3	4
Sodium (Na) (DIS)	20	12	27
Sulfate (SO ₄)	83	52	96
Total Alkalinity As CaCO ₃	90	78	99

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	<0.002	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	<0.001	0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.015	0.016	0.002
Gold (Au) (DIS)	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	<0.02	<0.02	0.04
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	0.007	<0.001	0.006
Silver (Ag) (DIS)	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	0.01	<0.01	0.01

Physical/Fld-Lab: ppm unless noted

Oxygen (O) (DIS) (Fld)	9.37	7.17	6.18
pH	7.2	7.5	7.3
pH (Fld)	7.12		6.82
SC (umbos/cm at 25 °C) (Fld)	266	195	269
SC (umbos/cm at 25 °C)	386	292	471

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	126Clint	263Gail	210Gree
Water	SAMPLE DATE	5/27/2009	5/13/2009	5/19/2009
	SAMPLE TIME	10:40	08:00	09:15
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050340-003	H09050213-003	H09050267-003
	SAMPLE NUMBER	EHR-0509-324	EHR-0509-302	EHR-0509-317
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION		to Fld pH-Instr. Err	
	REMARKS			

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	<10	<10	<10
TDS (Measured at 180 C)	253	175	267
Water Temperature (C) (Fld)	10.1	10.2	10.4

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	2540Wylie	2540Wylie	2540Wylie	303Thurman
Water	SAMPLE DATE	5/13/2009	5/27/2009	5/27/2009	5/13/2009
	SAMPLE TIME	11:00	10:00	10:20	09:45
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09050213-010	H09050340-001	H09050340-002	H09050213-007
	SAMPLE NUMBER	EHR-0509-309	EHR-0509-322	EHR-0509-323	EHR-0509-306
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION	Io Fld pH-Instr. Err	1st Sampling Event		Io Fld pH-Instr. Err
	REMARKS			Field Duplicate	

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO ₃)	140	120	120	110
Calcium (Ca) (DIS)	57	60	56	31
Chloride (Cl)	6	13	13	7
Magnesium (Mg) (DIS)	12	14	14	7
Potassium (K) (DIS)	5	3	3	6
Sodium (Na) (DIS)	17	23	23	28
Sulfate (SO ₄)	110	160	160	70
Total Alkalinity As CaCO ₃	120	97	98	92

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	<0.002	<0.002	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	0.001	0.002	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.002	<0.001	<0.001	0.005
Gold (Au) (DIS)	<0.01	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	<0.02	<0.02	<0.02	<0.02
Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	0.005	0.037	0.039	0.005
Silver (Ag) (DIS)	<0.005	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	0.02	<0.01	<0.01	0.02

Physical/Fld-Lab: ppm unless noted

Oxygen (O) (DIS) (Fld)	7.67	4.67		6.38
pH	7.6	7.1	7.1	7.4
pH (Fld)		6.58		
SC (umhos/cm at 25 C) (Fld)	326	395		250
SC (umhos/cm at 25 C)	479	563	561	367

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	2548Wylie	2540Wylie	2540Wylie	363Thurman
Water	SAMPLE DATE	5/13/2009	5/27/2009	5/27/2009	5/13/2009
	SAMPLE TIME	11:00	10:00	10:20	09:45
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09050213-010	H09050340-001	H09050340-002	H09050213-007
	SAMPLE NUMBER	EHR-0509-309	EHR-0509-322	EHR-0509-323	EHR-0509-306
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION to Fld pH-Instr. Err	1st Sampling Event			to Fld pH-Instr. Err
	REMARKS		Field Duplicate		

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	<10	<10	<10	<10
TDS (Measured at 180 C)	325	382	386	214
Water Temperature (C) (Fld)	9	11.3		11

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	401Gail	407Porter	701Malv	701Malv
Water	SAMPLE DATE	5/19/2009	5/13/2009	5/19/2009	5/19/2009
	SAMPLE TIME	08:20	09:15	09:40	10:00
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09050267-001	H09050213-006	H09050267-004	H09050267-005
	SAMPLE NUMBER	EHR-0509-315	EHR-0509-305	EHR-0509-318	EHR-0509-319
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION		lo Fld pH-Instr. Err		
	REMARKS				Field Duplicate
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO ₃)	150	150	220	220
	Calcium (Ca) (DIS)	92	88	68	69
	Chloride (Cl)	26	14	28	28
	Magnesium (Mg) (DIS)	21	20	18	19
	Potassium (K) (DIS)	6	4	14	14
	Sodium (Na) (DIS)	23	24	36	36
	Sulfate (SO ₄)	230	210	110	110
	Total Alkalinity As CACO ₃	120	120	180	180
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)	<0.1	<0.1	<0.1	<0.1
	Antimony (Sb) (DIS)	<0.003	<0.003	<0.003	<0.003
	Arsenic (As) (DIS)	0.003	0.002	0.013	0.013
	Barium (Ba) (DIS)	<0.1	<0.1	<0.1	<0.1
	Beryllium (Be) (DIS)	<0.001	<0.001	<0.001	<0.001
	Cadmium (Cd) (DIS)	0.001	<0.001	<0.001	<0.001
	Chromium (Cr) (DIS)	<0.001	<0.001	<0.001	<0.001
	Cobalt (Co) (DIS)	<0.01	<0.01	<0.01	<0.01
	Copper (Cu) (DIS)	0.004	0.012	0.003	0.004
	Gold (Au) (DIS)	<0.01	<0.01	<0.01	<0.01
	Iron (Fe) (DIS)	0.19	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	0.03	<0.01	<0.01	<0.01
	Mercury (Hg) (DIS)	<0.001	<0.001	<0.001	<0.001
	Nickel (Ni) (DIS)	<0.01	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.027	0.012	0.001	0.002
	Silver (Ag) (DIS)	<0.005 R	<0.005	<0.005 R	<0.005 R
	Tellurium (Te) (DIS)	<0.1	<0.1	<0.1	<0.1
	Thallium (Tl) (DIS)	<0.001	<0.001	<0.001	<0.001
	Vanadium (V) (DIS)	<0.01	<0.01	0.01	0.01
	Zinc (Zn) (DIS)	0.04	<0.01	<0.01	<0.01
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	6.77	5.42	10.3	
	pH	7.4	7.6	7.9	7.9
	pH (Fld)	6.79		7.2	
	SC (umhos/cm at 25 °C) (Fld)	502	476	470	
	SC (umhos/cm at 25 °C)	740	696	682	681

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	401Gail	407Porter	701Malv	701Malv
Water	SAMPLE DATE	5/19/2009	5/13/2009	5/19/2009	5/19/2009
	SAMPLE TIME	08:20	09:15	09:40	10:00
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09050267-001	H09050213-006	H09050267-004	H09050267-005
	SAMPLE NUMBER	EHR-0509-315	EHR-0509-305	EHR-0509-318	EHR-0509-319
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION		lo Fld pH-Instr. Err		
	REMARKS			Field Duplicate	

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	<10	<10	<10	<10
TDS (Measured at 180 C)	528	467	471	472
Water Temperature (C) (Fld)	11.9	11.1	12.3	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	Amchem4	EHC1	EHC2
Water	SAMPLE DATE	5/19/2009	5/13/2009	5/13/2009
	SAMPLE TIME	10:40	13:45	13:15
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050267-006	H09050213-012	H09050213-011
	SAMPLE NUMBER	EHR-0509-320	EHR-0509-311	EHR-0509-310
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION		lo Fld pH-Instr. Err	
	REMARKS			lo Fld pH-Instr. Err

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO3)	140	100	95
Calcium (Ca) (DIS)	38	30	31
Chloride (Cl)	5	5	5
Magnesium (Mg) (DIS)	9	7	7
Potassium (K) (DIS)	4	3	3
Sodium (Na) (DIS)	15	12	12
Sulfate (SO4)	45	41	44
Total Alkalinity As CACO3	110	82	78

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	<0.002	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.001	0.002	0.004
Gold (Au) (DIS)	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	<0.02	<0.02	0.03
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	<0.001	<0.001	<0.001
Silver (Ag) (DIS)	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	0.01	0.02

Physical/Fid-Lab: ppm unless noted

Oxygen (O) (DIS) (Fld)	9.67	5.97	7.3
pH	7.6	7.6	7.8
pH (Fld)	7.04		
SC (umhos/cm at 25 C) (Fld)	230	190	196
SC (umhos/cm at 25 C)	338	280	284

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	Amchem4	EHC1	EHC2
Water	SAMPLE DATE	5/19/2009	5/13/2009	5/13/2009
	SAMPLE TIME	10:40	13:45	13:15
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050267-006	H09050213-012	H09050213-011
	SAMPLE NUMBER	EHR-0509-320	EHR-0509-311	EHR-0509-310
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION		lo Fld pH-Instr. Err	
	REMARKS			lo Fld pH-Instr. Err

Physical/Fld-Lab: ppm unless noted

Total Suspended Solids	94	<10	<10
TDS (Measured at 180 C)	253	162	172
Water Temperature (C) (Fld)	14.4	12	12.3

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EHC3	EHC3	PelePkl	PelePkl2
Water	SAMPLE DATE	5/13/2009	5/13/2009	5/13/2009	5/13/2009
	SAMPLE TIME	14:00	14:15	10:30	10:15
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09050213-013	H09050213-014	H09050213-009	H09050213-008
	SAMPLE NUMBER	EHR-0509-312	EHR-0509-313	EHR-0509-308	EHR-0509-307
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION	Io Fld pH-Instr. Err		Io Fld pH-Instr. Err	Io Fld pH-Instr. Err
	REMARKS	Field Duplicate			

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO3)	94	94	95	94
Calcium (Ca) (DIS)	29	29	30	28
Chloride (Cl)	4	4	4	3
Magnesium (Mg) (DIS)	7	6	7	6
Potassium (K) (DIS)	3	3	3	3
Sodium (Na) (DIS)	13	13	12	12
Sulfate (SO4)	45	45	47	41
Total Alkalinity As CACO3	77	77	78	77

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	<0.002	<0.002	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	0.002	0.001	<0.001	<0.001
Gold (Au) (DIS)	<0.01	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	<0.02	<0.02	<0.02	0.04
Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	<0.001	<0.001	<0.001	<0.001
Silver (Ag) (DIS)	<0.005	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	<0.01	0.01	<0.01

Physical/Fld-Lab: ppm unless noted

Oxygen (O) (DIS) (Fld)	7.78		7.78	5.62
pH	7.6	7.6	7.7	7.6
SC (umhos/cm at 25 °C) (Fld)	184		189	180
SC (umhos/cm at 25 °C)	275	274	277	261
Total Suspended Solids	<10	<10	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EHC3	EHC3	PelePkl	PelePk2
Water	SAMPLE DATE	5/13/2009	5/13/2009	5/13/2009	5/13/2009
	SAMPLE TIME	14:00	14:15	10:30	10:15
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09050213-013	H09050213-014	H09050213-009	H09050213-008
	SAMPLE NUMBER	EHR-0509-312	EHR-0509-313	EHR-0509-308	EHR-0509-307
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION	lo Fld pH-Instr. Err		lo Fld pH-Instr. Err	lo Fld pH-Instr. Err
	REMARKS		Field Duplicate		

Physical/Fld-Lab: ppm unless noted

TDS (Measured at 180 C)	165	165	171	160
Water Temperature (C) (Fld)	8.4		8.8	8.5

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

East Helena Private Wells - May 2009 Sampling Event

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	Field Blank	Field Blank	Field Blank
Water	SAMPLE DATE	5/13/2009	5/19/2009	5/27/2009
	SAMPLE TIME	14:30	11:05	12:00
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09050213-015	H09050267-007	H09050340-005
	SAMPLE NUMBER	EHR-0509-314	EHR-0309-321	EHR-0509-326
	TYPE	Field QC	Field QC	Field QC
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION			
	REMARKS	Blank	Blank	Blank

Common Ions (mg/L): ppm unless noted

Bicarbonate (HCO ₃)	2	2	2
Calcium (Ca) (DIS)	<1	<1	<1
Chloride (Cl)	<1	<1	<1
Magnesium (Mg) (DIS)	<1	<1	<1
Potassium (K) (DIS)	<1	<1	<1
Sodium (Na) (DIS)	<1	<1	<1
Sulfate (SO ₄)	<1	<1	<1
Total Alkalinity As CACO ₃	2	2	2

Metals (mg/L): ppm unless noted

Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
Arsenic (As) (DIS)	<0.002	<0.002	<0.002
Barium (Ba) (DIS)	<0.1	<0.1	<0.1
Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
Copper (Cu) (DIS)	<0.001	<0.001	<0.001
Gold (Au) (DIS)	<0.01	<0.01	<0.01
Iron (Fe) (DIS)	<0.02	<0.02	<0.02
Lead (Pb) (DIS)	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
Selenium (Se) (DIS)	<0.001	<0.001	<0.001
Silver (Ag) (DIS)	<0.005	<0.005	<0.005
Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
Vanadium (V) (DIS)	<0.01	<0.01	<0.01
Zinc (Zn) (DIS)	<0.01	<0.01	<0.01

Physical/Fid-Lab: ppm unless noted

pH	5.6	5.2	5.7
SC (umhos/cm at 25 °C)	2	2	2
Total Suspended Solids	<10	<10	<10
TDS (Measured at 180 °C)	<10	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

APPENDIX 3
FIELD NOTES

MAY 13, 2009

ANNUAL PVI FE LONG TERM MONITORING
PROGRAM - RESIDENTIAL WELL AND PUBLIC
WATER SYSTEM

FIELD STANDARDIZATION OF HANNA WATER CHECKER

STANDARD VALUE	METER VALUE
PH 4.00 SCL	4.00 SCL
CONDUCTIVITY 4480.0 mhos/cm	4480.0 mhos/cm
SAUNITY 0.23%	0.23%

CARLSON

1 GAIL STREET
EHR - 0509 - 300

SAMPLE COLLECTED FROM NORTH FACING
LAWN SPIGOT ATTACHED TO HOUSE AFTER
10 MINUTE PURGE.

PH	METER MFUNCTION, NO READING
CONDUCTIVITY	200.0 mhos/cm
D.O.	9.30 mg/l

TEMP

7.2°C

PUEL

3 GAIL STREET
EHR - 0509 - 301

SAMPLE COLLECTED FROM NORTH FACING LAW
SPIGOT ATTACHED TO HOUSE AFTER 10 MINUTE PURGE

PH	METER MFUNCTION
CONDUCTIVITY	200.0 mhos/cm
D.O.	5.67 mg/l
TEMP	7.1°C

FOLEY

203 GAIL STREET
EHR - 0509 - 302

SAMPLE COLLECTED FROM NORTH SIDE LAWN
SPIGOT ATTACHED TO HOUSE AFTER 10 MINUTE
PURGE

PH	METER MFUNCTION
CONDUCTIVITY	195.0 mhos/cm
D.O.	7.17 mg/l
TEMP	10.2°C

MISTER

105 GAIL STREET
EHR - 0509 - 303

SAMPLE COLLECTED FROM NORTH SIDE LAWN
SPIGOT ATTACHED TO HOUSE AFTER 10 MINUTE PURGE

PH	METER MFUNCTION
CONDUCTIVITY	202.0 mhos/cm
D.O.	6.46 mg/l
TEMP	10.3°C

TOMOL

9 GAIL STREET
EHR - 0509 - 304

SAMPLE COLLECTED FROM SOUTH SIDE LAWN SPIGOT
ATTACHED TO HOUSE AFTER 10 MINUTE PURGE

PH	METER MFUNCTION
CONDUCTIVITY	198.0 mhos/cm
D.O.	7.05 mg/l
TEMP	9.7°C

HELPET

407 PORTER

EHR-0509-305

SAMPLE COLLECTED FROM NORTH SIDE LAW
SPIGOT ATTACHED TO HOUSE AFTER 10
MINUTE PURGE

PH	METER MalfUNCTION
CONDUCTIVITY	476 umhos/cm
D.O.	5.42 mg/l
TEMP	11.1°C

MARQUET

303 THURMAN AVENUE

EHR-0509-306

SAMPLE COLLECTED FROM EAST SIDE LAW
SPIGOT ATTACHED TO HOUSE AFTER 10 MINUTE
PURGE

PH	METER MalfUNCTION
CONDUCTIVITY	250 umhos/cm
D.O.	6.38 mg/l
TEMP	11.0°C

PELE TRAILER PARK WELL NO. 1

EHR-0509-307

ALLEN COURTHOUSE PRESENT WHILE SAMPLE
WAS COLLECTED. WELL NO. 2 WAS ISOLATED FROM
WELL NO. 1 AND PURGED FOR 10 MINUTES

PH	METER MalfUNCTION
CONDUCTIVITY	180 umhos/cm
D.O.	5.62 mg/l
TEMP	8.5°C

PELE TRAILER PARK WELL NO. 1

EHR-0509-308

COLLECTED SAMPLE FROM SPIGOT TAP AFTER
ISOLATION OF WELL NO. 2 AND 10 MINUTE PURGE

PH	METER MalfUNCTION
CONDUCTIVITY	189 umhos/cm
D.O.	7.78 mg/l
TEMP	8.8°C

SIMAC

DRINKING WATER WELL

25TH WHILE DRINK

EHR-0509-309

SAMPLE COLLECTED FROM EAST SIDE LAW
SPIGOT ATTACHED TO HOUSE AFTER 10 MINUTE
PURGE. RAW SAMPLE SLIGHTLY TURBID

PH	METER MalfUNCTION
CONDUCTIVITY	326 umhos/cm
D.O.	7.67 mg/l
TEMP	9.0°C

CITY OF EAST HELENA WELL #2

EHR-0509-310

BILL CASEY ADVISED ME THAT WELL IS NOT
ACTIVE. SAMPLE OBTAINED FROM STAINLESS
STEEL SPIGOT ATTACHED TO MAIN PIPE MANIFOLD

PH	METER MalfUNCTION
CONDUCTIVITY	196 umhos/cm
D.O.	7.30 mg/l
TEMP	12.3°C

CITY OF EAST HELENA WELL NO. 1
 EHR-0509-311
 STEVE LEITZKE PRESENT DURING WELL
 SAMPLE COLLECTION. SAMPLE OBTAINED
 FROM STAINLESS STEEL SPIGOT ATTACHED
 TO MAIN PIPE MANIFOLD

PH	METER MalfUNCTION
CONDUCTIVITY	190. umhos/cm
D.O.	5.97 mg/l
TEMP.	12.0°C

CITY OF EAST HELENA WELL NO. 31
 EHR-0509-312 ORIGINAL
 EHR-0509-313 DUPLICATE
 STEVE LEITZKE PRESENT DURING WELL
 SAMPLE COLLECTION. SAMPLE OBTAINED
 FROM STAINLESS STEEL SPIGOT ATTACHED
 TO MAIN PIPE MANIFOLD

PH	METER malfUNCTION
CONDUCTIVITY	184 umhos/cm
D.O.	7.78 mg/l
TEMP.	8.4°C

FIELD BLANK
 EHR-0509-314

MAY 19, 2009

ANNUAL LONG TERM RI/FS MONITORING
 PROGRAM - RESIDENTIAL WELL AND PUBLIC
 WATER SYSTEMS (CONTINUATION)

FIELD STANDARDIZATION OF Horiba

STANDARD	METER	
VALUE	VALUE	
PH	4.00 SU	4.00 SU
CONDUCTIVITY	4490 umhos/cm	4490 umhos/cm
SALINITY	0.23%	0.23%

NORDSTROM!

SEVERAL ATTEMPTS TO CONTACT NORDSTROM
 WERE UNSUCCESSFUL. NELMA MOSIER
 (NEWBERRY) STATED MRS. NORDSTROM
 HAD KNEE SURGERY AND WAS RESTING
 AT A NURSING HOME. NO SAMPLE
 COLLECTED FROM THIS IRRIGATION SYSTEM.

JENSEN!

401 GALL STREET
 EHR-0509-315
 BOTH PAUL AND DANE JENSEN PRESENT
 DURING SAMPLE COLLECTION FROM DUSKINE
 GARDEN/HORN SPIGOT AFTER 10-MINUTE RWA

PH	6.79 SU
CONDUCTIVITY	502 umhos/cm
D.O.	6.77 mg/l
TEMP.	11.9°C

SAMPLE SLIGHTLY TURBID

ST. CLAIR

107 E. GROSCHEL
EHR-0509-316

IRRIGATION WATER WAS WATERING
LAWN PRIOR TO SAMPLE COLLECTION.
SAMPLE OBTAINED FROM NORTH FACING
LAWN SPOT AFTER 10 MINUTE PURGE

PH	6.93 SL
CONDUCTIVITY	311 umhos/cm
D.O.	6.30 mg/l
TEMP	10.4°C

GAGE

210 E. GROSCHEL
EHR-0509-317

SAMPLE COLLECTED FROM SOUTH LAWN
SPOT AFTER 10 MINUTE PURGE

PH	6.82 SL
CONDUCTIVITY	269 umhos/cm
D.O.	6.18 mg/l
TEMP.	10.4°C

MAT BALCERZAK

701 MANLOUE
EHR-0509-318

EHR-0509-319 DUPLICATE

SAMPLE COLLECTED FROM EAST SIDE LAWN
SPOT, IRRIGATION SYSTEM WAS WATERING
LAWN PRIOR AND DURING SAMPLE COLLECTION

PH	7.20 SL
CONDUCTIVITY	470 umhos/cm
D.O.	10.30 mg/l
TEMP	12.3°C

AMERICAN CHEMET NO. 4!

EHR-0509-320

SAMPLE COLLECTED FROM SPOT ON TOP OF
PUMP PIPE AFTER 10 MINUTE PURGE

PH	7.04 SL
CONDUCTIVITY	230 umhos/cm
D.O.	9.67 mg/l
TEMP	14.4°C

SAMPLE SLIGHTLY TURBID

FIELD BLANK

EHR-0509-321

MAY 27, 2009
ANNUAL LONG-TERM RI/FS MONITORING
PROGRAM - RESIDENTIAL WELL AND PUBLIC
WATER SUPPLY SYSTEM (CONTINUATION)

FIELD STANDARDIZATION OF Horiba

STANDARD VALUE	METER READING
-------------------	------------------

PH	4.00 SU	4.00 SU
CONDUCTIVITY	4490 umhos/cm	4490 umhos/cm
SALINITY	0.23%	0.23%

SIMAC

IRRIGATION WELL

2540 White Brine

FIRST EVER SAMPLING OF IRRIGATION

WELL. WATER FROM WELL WAS IRRIGATING
YARD PRIOR TO SAMPLE COLLECTION. WELL
PHYSICALLY LOCATED ABOUT 250 FEET FROM
HOME TO THE SOUTH. SAMPLE COLLECTED
FROM 2" HOSE (200 ft LENGTH) CONNECTED
TO WELL. SPIGOT AT WELL WAS FROZEN

EHR-0509-322 ORIGINAL

EHR-0509-323 DUPLICATE

PH	6.58 SU
CONDUCTIVITY	395 umhos/cm
D.O.	4.67 mg/l
TEMP.	11.3°C

ST. GERMAIN

DRINKING WATER WELL

126 E. CLINTON AVENUE

IRRIGATION WELL AT THIS LOCATION (WLD).
NOT BE ACCESSED INSIDE LOCKED FENCE AND
GATE. DOG. SAMPLE COLLECTED FROM SOUTH
SIDE SPIGOT TO HOME AFTER 10 MINUTE PURGE.
EHR-0509-324

PH	7.12 SU
CONDUCTIVITY	266 umhos/cm
D.O.	9.37 mg/l
TEMP.	10.1°C

Abramsrom

109 GAIL STREET

EHR-0509-325

IRRIGATION SYSTEM ACTIVATED FOR THE FIRST
TIME THIS SEASON. SAMPLE COLLECTED
FROM CURB SIDE SPIGOT BY CONDUIT AFTER
10 MINUTE PURGE. SAMPLE SLIGHTLY TURBID.

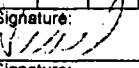
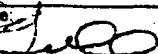
PH	7.33 SU
CONDUCTIVITY	200 umhos/cm
D.O.	5.40 mg/l
TEMP.	10.3°C

EHR-0509-326 FIELD BLANK

APPENDIX 4
CHAIN OF CUSTODIES

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible

Company Name: ASARCO LLC		Project Name, PWS, Permit, Etc. ANNUAL CITY'S LONG-TERM MONITORING MAY 2007		Sample Origin State: MT		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>			
Report Mail Address: P.O. BOX 1230 EAST HELENA, MT 59636		Contact Name: JON NICKEL Phone/Fax: 227-4529 227-2256		Email:		Sampler: (Please Print): NICKEL			
Invoice Address:		Invoice Contact & Phone:				Purchase Order:		Quote/Bottle Order:	
Special Report/Formats – ELI must be notified prior to sample submittal for the following:		ANALYSIS REQUESTED				Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page		Shipped by: HAN Cooler ID(s):	
<input type="checkbox"/> DW <input type="checkbox"/> GSA <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____		<input type="checkbox"/> A2LA <input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____		Number of Containers Sample Type: AW SV BO Air Water Solids Vegetation Bioassay Other		R U S H		Comments:	
								Receipt Temp: 7.7 °C On Ice: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Custody Seal Y <input type="checkbox"/> N Bottles/ Coolers B C Intact Y <input type="checkbox"/> Signature Match Y <input type="checkbox"/>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED	SEE ATTACHED	Normal Turnaround (TAT)	LABORATORY USE ONLY	
1 EHR-0509-300 RAW		5/13/07	7:20	GW	X X		X X		
2 EHR-0509-300 METAL			7:20			X			
3 EHR-0509-301 RAW			7:40		X /				
4 EHR-0509-301 METAL			7:40			X			
5 EHR-0509-302 RAW			8:20		X X				
6 EHR-0509-302 METAL			8:00			X			
7 EHR-0509-303 RAW			8:20		X X				
8 EHR-0509-303 METAL			8:20			X			
9 EHR-0509-304 RAW			8:40		X X				
10 EHR-0509-304 METAL			8:40			X			
Custody Record MUST be Signed		Relinquished by (print): JON NICKEL Date/Time: 5/13/07 15:30		Signature: 		Received by (print): _____ Date/Time: _____		Signature: _____	
		Relinquished by (print): _____ Date/Time: _____		Signature: _____		Received by (print): _____ Date/Time: _____		Signature: _____	
		Sample Disposal: Return to Client		Lab Disposal: KODAK 1114 1 east 2 1309 15:30		Received by Laboratory: _____ Date/Time: _____		Signature: 	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

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Chain of Custody and Analytical Request Record

Page 2 of 3

Company Name: ASARCO LLC			Project Name, PWS, Permit, Etc. ANNUAL RATES LONG TERM MONITORING MAY 2004			Sample Origin State: MT	EPA/State Compliance: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Report/Mail Address: P.O. BOX 1230 EAST HELENA, MT 59635			Contact Name: _____	Phone/Fax: _____	Email: _____	Sampler: (Please Print) NICKEL		
Invoice Address: _____			Invoice Contact & Phone: _____			Purchase Order: _____	Quote/Bottle Order: _____	
Special Report/Formats – ELI must be notified prior to sample submittal for the following:			Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other	ANALYSIS REQUESTED			Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page	Shipped by: Wendy Cooler ID(s): _____
<input type="checkbox"/> DW <input type="checkbox"/> GSA <input type="checkbox"/> POTWWTP <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____			<input type="checkbox"/> A2LA <input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC	R	U	S	Comments: _____	Receipt Temp 5.7 °C On Ice: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
				H				Custody Seal Y <input checked="" type="checkbox"/> Bottles/ Coolers B <input type="checkbox"/> Intact Y <input checked="" type="checkbox"/> Signature Match Y <input checked="" type="checkbox"/>
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	MATRIX	SEE ATTACHED	Normal Turnaround (TAT)		
1 EHR-0509-305 RAW		5/13/09	9:15	GW	X X	X X		
2 EHR-0509-305 METAL			9:15		X			
3 EHR-0509-306 RAW			9:45		X X			
4 EHR-0509-306 metal			9:45		X			
5 EHR-0509-307 RAW			10:15		X X			
6 EHR-0509-307 metal			10:15		X			
7 EHR-0509-308 RAW			10:30		X X			
8 EHR-0509-308 metal			10:30		X			
9 EHR-0509-309 RAW			11:00		X X			
10 EHR-0509-309 metal			11:00		X			
LABORATORY USE ONLY								
Custody Record MUST be Signed	Relinquished by (print): JAN			Date/Time: 5/13/09 10:30	Signature: 11/11/08	Received by (print): Karen	Date/Time: 5/13/09 11:15	Signature: 11/11/08
	Relinquished by (print): JAN			Date/Time: 5/13/09 10:30	Signature: 11/11/08	Received by (print): Karen	Date/Time: 5/13/09 11:15	Signature: 11/11/08
Sample Disposal: Return to Client: _____			Lab Disposal: _____			Received by Laboratory: Karen 11/11/08 5/13/09 10:30	Date/Time: 5/13/09 11:15	Signature: 11/11/08

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Chain of Custody and Analytical Request Record

Page 3 of 3

Company Name: <u>ASARCO LLC</u>		Project Name, PWS, Permit, Etc. <u>ANNUAL RUST LND-TVM MONITORING MAY 2007</u>		Sample Origin State: MT	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address: <u>P.O. BOX 1230 EAST HELENA, MT 59635</u>		Contact Name:	Phone/Fax:	Email:	Sampler: (Please Print) <u>NICKEL</u>	
Invoice Address:		Invoice Contact & Phone:		Purchase Order:	Quote/Bottle Order:	
Special Report/Formats – ELI must be notified prior to sample submittal for the following: <input type="checkbox"/> DW <input type="checkbox"/> A2LA <input type="checkbox"/> GSA <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTWWTP Format: _____ <input type="checkbox"/> State: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: _____ <input type="checkbox"/> NELAC		Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other	ANALYSIS REQUESTED		Shipped by: <u>MH100</u> Cooler ID(s):	
			SEE ATTACHED	Normal Turnaround (TAT)	Comments: Receipt Temp <u>77</u> °C On Ice: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Custody Seal Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Bottles/ Coolers B C Intact Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Signature Match Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	R U S H	LABORATORY USE ONLY	
EHR-0509-310 RAW	5/13/07	11:15	GWJ	X X		
EHR-0509-310 METAL		11:15		X		
EHR-0509-311 RAW		11:45		X X		
EHR-0509-311 METAL		11:45		X		
EHR-0509-312 RAW		2:00		X X		
EHR-0509-312 METAL		2:00		X		
EHR-0509-313 RAW		2:15		X X		
EHR-0509-313 METAL		2:15		X		
EHR-0509-314 RAW		2:30		X X		
EHR-0509-314 METAL		2:30		X		
Custody Record MUST be Signed	Relinquished by (print): <u>JKL</u>	Date/Time: <u>5/13/07</u>	Signature: <u>JKL</u>	Received by (print):	Date/Time:	Signature:
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Sample Disposal:	Return to Client:	Lab Disposal:	Received by Laboratory: <u>JKL</u>	Date/Time: <u>5/13/07 16:30</u>	Signature: <u>JKL</u>

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Chain of Custody and Analytical Request Record

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Chain of Custody and Analytical Request Record

Page 2 of 2

PLEASE PRINT - Provide as much information as possible.

Company Name: ASAPCO LLC		Project Name, PWS, Permit, Etc. ANNUAL CHFS LONG-TERM MONITORING		Sample Origin State: MT	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>		
Report Mail Address: P.O. BOX 1230 EAST HELENA, MT 59635		Contact Name: _____	Phone/Fax: _____	Email: _____	Sampler: (Please Print) NICEL		
Invoice Address: _____		Invoice Contact & Phone: _____		Purchase Order: _____	Quote/Bottle Order: _____		
Special Report/Formats – ELI must be notified prior to sample submittal for the following:		Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other	ANALYSIS REQUESTED		RUSH	Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page	Shipped by: WATER Cooler ID(s): _____
<input type="checkbox"/> DW <input type="checkbox"/> GSA <input type="checkbox"/> POTWWTP <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____		<input type="checkbox"/> A2LA <input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____	<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC	SEE ATTACHED		Normal Turnaround (TAT)	Comments:
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	TESTS	TESTS	TESTS	TESTS
EBR-0501-320 RAW	5/17/01	10:40	(2N)	X X	X X		
EBR-0501-320 METAL		10:40		X			
EBR-0501-321 RAW		11:05		X X			
EBR-0501-321 METAL		11:05		X			
5							
6							
7							
8							
9							
10							
Custody Record MUST be Signed	Relinquished by (print): JONATHAN	Date/Time: 5/17/01/1530	Signature: Johnathan	Received by (print):	Date/Time:	Signature:	
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:	
				Received by Laboratory: Karen M. Miller	Date/Time: 5/17/01/1530	Signature: Karen M. Miller	
Sample Disposal: Return to Client:		Lab Disposal:					

LABORATORY USE ONLY

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

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APPENDIX 5
LABORATORY REPORT



ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

May 22, 2009

Jon Nickel
Asarco LLC
PO Box 1230
East Helena, MT 59635-

Workorder No.: H09050213 Quote ID: H409 - Semi-Annual Residential CAMU Monitoring

Project Name: Annual RI/FS Long Term Monitoring May 2009

Energy Laboratories Inc received the following 15 samples for Asarco LLC on 5/13/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09050213-001	EHR-0509-300	05/13/09 7:20	05/13/09	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09050213-002	EHR-0509-301	05/13/09 7:40	05/13/09	Groundwater	Same As Above
H09050213-003	EHR-0509-302	05/13/09 8:00	05/13/09	Groundwater	Same As Above
H09050213-004	EHR-0509-303	05/13/09 8:20	05/13/09	Groundwater	Same As Above
H09050213-005	EHR-0509-304	05/13/09 8:40	05/13/09	Groundwater	Same As Above
H09050213-006	EHR-0509-305	05/13/09 9:15	05/13/09	Groundwater	Same As Above
H09050213-007	EHR-0509-306	05/13/09 9:45	05/13/09	Groundwater	Same As Above
H09050213-008	EHR-0509-307	05/13/09 10:15	05/13/09	Groundwater	Same As Above
H09050213-009	EHR-0509-308	05/13/09 10:30	05/13/09	Groundwater	Same As Above
H09050213-010	EHR-0509-309	05/13/09 11:00	05/13/09	Groundwater	Same As Above
H09050213-011	EHR-0509-310	05/13/09 13:15	05/13/09	Groundwater	Same As Above
H09050213-012	EHR-0509-311	05/13/09 13:45	05/13/09	Groundwater	Same As Above
H09050213-013	EHR-0509-312	05/13/09 14:00	05/13/09	Groundwater	Same As Above
H09050213-014	EHR-0509-313	05/13/09 14:15	05/13/09	Groundwater	Same As Above
H09050213-015	EHR-0509-314	05/13/09 14:30	05/13/09	Groundwater	Same As Above

BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS

Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C ($\pm 2^{\circ}\text{C}$)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling



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ANALYTICAL SUMMARY REPORT

process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Jonathan D. Hager

Report Approved By:

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-
Helena, ou=Assistant Lab Manager,
email=jhager@energylab.com, c=US
Date: 2009.05.22 15:31:02 -06'00'



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-300
Lab ID: H09050213-001
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 07:20 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	05/15/09 11:56 / hm		PH_090515A : 49		090515A-PH-W
Conductivity	291	umhos/cm		1		A2510 B	05/15/09 10:03 / hm		COND_090515A : 290515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:00 / hm		SOLIDS_090519A : 3	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	172	mg/L		10		A2540 C	05/19/09 15:33 / hm		SOLIDS_090519B : 3	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		1		A2320 B	05/21/09 10:02 / hm		TITTR_090521A : 7		090521A-ALK-W
Bicarbonate as HCO3	94	mg/L		1		A2320 B	05/21/09 10:02 / hm		TITTR_090521A : 7		090521A-ALK-W
Chloride	5	mg/L		1		E300.0	05/20/09 22:35 / hm		IC101-H_090520A : 49		R53685
Sulfate	51	mg/L		1		E300.0	05/20/09 22:35 / hm		IC101-H_090520A : 49		R53685
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Calcium	30	mg/L		1		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Chromium	0.001	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Copper	0.055	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Gold	ND	mg/L		0.01		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Iron	0.05	mg/L		0.02		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Magnesium	7	mg/L		1		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Potassium	3	mg/L		1		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Selenium	ND	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584

Report RL - Analyte reporting limit.

Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-300
Lab ID: H09050213-001
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 07:20 DateReceived: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Sodium	13	mg/L		1		E200.7	05/19/09 20:54 / eli-b		SUB-B129715 : 7		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:02 / eli-b		SUB-B129584 : 40		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-301
Lab ID: H09050213-002
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 07:40 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	05/15/09 11:57 / hm		PH_090515A : 50		090515A-PH-W
Conductivity	298	umhos/cm		1		A2510 B	05/15/09 10:04 / hm		COND_090515A : 390515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:01 / hm		SOLIDS_090519A : 4	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	175	mg/L		10		A2540 C	05/19/09 15:33 / hm		SOLIDS_090519B : 4	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO ₃	78	mg/L		1		A2320 B	05/21/09 10:12 / hm		TITTR_090521A : 8		090521A-ALK-W
Bicarbonate as HCO ₃	95	mg/L		1		A2320 B	05/21/09 10:12 / hm		TITTR_090521A : 8		090521A-ALK-W
Chloride	5	mg/L		1		E300.0	05/20/09 22:51 / hm		IC101-H_090520A : 50		R53685
Sulfate	53	mg/L		1		E300.0	05/20/09 22:51 / hm		IC101-H_090520A : 50		R53685
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Arsenic	0.003	mg/L		0.002		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Calcium	30	mg/L		1		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Copper	0.023	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Gold	ND	mg/L		0.01		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Iron	0.03	mg/L		0.02		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Magnesium	7	mg/L		1		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Potassium	3	mg/L		1		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Selenium	0.002	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584

Report RL - Analyte reporting limit.

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ND - Not detected at the reporting limit.

Definitions:



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-301
Lab ID: H09050213-002
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 07:40 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Sodium	13	mg/L		1		E200.7	05/19/09 20:58 / eli-b		SUB-B129715 : 10		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:07 / eli-b		SUB-B129584 : 43		B_R129584

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-302
Lab ID: H09050213-003
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 08:00 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	05/15/09 11:59 / hm		PH_090515A : 51	090515A-PH-W	
Conductivity	292	umhos/cm		1		A2510 B	05/15/09 10:05 / hm		COND_090515A : 490515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:02 / hm		SOLIDS_090519A : 5	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	175	mg/L		10		A2540 C	05/19/09 15:34 / hm		SOLIDS_090519B : 5	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	78	mg/L		1		A2320 B	05/21/09 10:19 / hm		TITTR_090521A : 9	090521A-ALK-W	
Bicarbonate as HCO3	95	mg/L		1		A2320 B	05/21/09 10:19 / hm		TITTR_090521A : 9	090521A-ALK-W	
Chloride	4	mg/L		1		E300.0	05/20/09 23:08 / hm		IC101-H_090520A : 51	R53685	
Sulfate	52	mg/L		1		E300.0	05/20/09 23:08 / hm		IC101-H_090520A : 51	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Calcium	30	mg/L		1		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Copper	0.016	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Magnesium	7	mg/L		1		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	
Potassium	3	mg/L		1		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11	B_R129715	
Selenium	ND	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44	B_R129584	

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-302
Lab ID: H09050213-003
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 08:00 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44		B_R129584
Sodium	12	mg/L		1		E200.7	05/19/09 21:02 / eli-b		SUB-B129715 : 11		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:11 / eli-b		SUB-B129584 : 44		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-303
Lab ID: H09050213-004
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 08:20 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	05/15/09 12:01 / hm		PH_090515A : 52	090515A-PH-W	
Conductivity	306	umhos/cm		1		A2510 B	05/15/09 10:06 / hm		COND_090515A : 590515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:02 / hm		SOLIDS_090519A : 6	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	185	mg/L		10		A2540 C	05/19/09 15:35 / hm		SOLIDS_090519B : 6	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		1		A2320 B	05/21/09 10:26 / hm		TITTR_090521A : 10	090521A-ALK-W	
Bicarbonate as HCO3	110	mg/L		1		A2320 B	05/21/09 10:26 / hm		TITTR_090521A : 10	090521A-ALK-W	
Chloride	4	mg/L		1		E300.0	05/20/09 23:24 / hm		IC101-H_090520A : 52	R53685	
Sulfate	52	mg/L		1		E300.0	05/20/09 23:24 / hm		IC101-H_090520A : 52	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 21:06 / eli-b		SUB-B129715 : 12	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Calcium	32	mg/L		1		E200.7	05/19/09 21:06 / eli-b		SUB-B129715 : 12	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45	B_R129584	
Copper	0.019	mg/L		0.001		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 21:06 / eli-b		SUB-B129715 : 12	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 21:06 / ell-b		SUB-B129715 : 12	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45	B_R129584	
Magnesium	7	mg/L		1		E200.7	05/19/09 21:06 / ell-b		SUB-B129715 : 12	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	
Potassium	3	mg/L		1		E200.7	05/19/09 21:06 / ell-b		SUB-B129715 : 12	B_R129715	
Selenium	ND	mg/L		0.001		E200.8	05/19/09 04:15 / ell-b		SUB-B129584 : 45	B_R129584	

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

Definitions:



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-303
Lab ID: H09050213-004
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 08:20 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45		B_R129584
Sodium	13	mg/L		1		E200.7	05/19/09 21:06 / eli-b		SUB-B129715 : 12		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:15 / eli-b		SUB-B129584 : 45		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-304
Lab ID: H09050213-005
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 08:40 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	05/15/09 12:03 / hm		PH_090515A : 53		090515A-PH-W
Conductivity	294	umhos/cm		1		A2510 B	05/15/09 10:07 / hm		COND_090515A : 690515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:03 / hm		SOLIDS_090519A : 7	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	178	mg/L		10		A2540 C	05/19/09 15:35 / hm		SOLIDS_090519B : 7	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	81	mg/L		1		A2320 B	05/21/09 11:11 / hm		TITTR_090521A : 13		090521A-ALK-W
Bicarbonate as HCO3	99	mg/L		1		A2320 B	05/21/09 11:11 / hm		TITTR_090521A : 13		090521A-ALK-W
Chloride	5	mg/L		1		E300.0	05/20/09 23:41 / hm		IC101-H_090520A : 53		R53685
Sulfate	50	mg/L		1		E300.0	05/20/09 23:41 / hm		IC101-H_090520A : 53		R53685
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Calcium	32	mg/L		1		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Copper	0.087	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Gold	ND	mg/L		0.01		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Iron	ND	mg/L		0.02		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Magnesium	7	mg/L		1		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Potassium	3	mg/L		1		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Selenium	ND	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-304
Lab ID: H09050213-005
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 08:40 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Sodium	13	mg/L		1		E200.7	05/19/09 21:39 / eli-b		SUB-B129715 : 13		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:19 / eli-b		SUB-B129584 : 46		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-305
Lab ID: H09050213-006
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 09:15 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/15/09 12:07 / hm		PH_090515A : 55	090515A-PH-W	
Conductivity	696	umhos/cm		1		A2510 B	05/15/09 10:10 / hm		COND_090515A : 890515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:03 / hm		SOLIDS_090519A : 8 090519A-SLDS-TSS-		
Solids, Total Dissolved TDS @ 180 C	467	mg/L		10		A2540 C	05/19/09 15:36 / hm		SOLIDS_090519B : 8 090519A-SLDS-TDS-		
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	05/21/09 11:20 / hm		TITTR_090521A : 14	090521A-ALK-W	
Bicarbonate as HCO3	150	mg/L		1		A2320 B	05/21/09 11:20 / hm		TITTR_090521A : 14	090521A-ALK-W	
Chloride	14	mg/L		1		E300.0	05/21/09 00:30 / hm		IC101-H_090520A : 56	R53685	
Sulfate	210	mg/L		1		E300.0	05/21/09 00:30 / hm		IC101-H_090520A : 56	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Arsenic	0.002	mg/L		0.002		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Calcium	88	mg/L		1		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Copper	0.012	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Magnesium	20	mg/L		1		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	
Potassium	4	mg/L		1		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14	B_R129715	
Selenium	0.012	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47	B_R129584	

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-305
Lab ID: H09050213-006
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 09:15 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47		B_R129584
Sodium	24	mg/L		1		E200.7	05/19/09 21:51 / eli-b		SUB-B129715 : 14		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:23 / eli-b		SUB-B129584 : 47		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-306
Lab ID: H09050213-007
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 09:45 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	05/15/09 12:09 / hm		PH_090515A : 56	090515A-PH-W	
Conductivity	367	umhos/cm		1		A2510 B	05/15/09 10:11 / hm		COND_090515A : 990515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:04 / hm		SOLID_090519A : 9	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	214	mg/L		10		A2540 C	05/19/09 15:37 / hm		SOLID_090519B : 9	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	92	mg/L		1		A2320 B	05/21/09 11:27 / hm		TITTR_090521A : 15	090521A-ALK-W	
Bicarbonate as HCO3	110	mg/L		1		A2320 B	05/21/09 11:27 / hm		TITTR_090521A : 15	090521A-ALK-W	
Chloride	7	mg/L		1		E300.0	05/21/09 00:46 / hm		IC101-H_090520A : 57	R53685	
Sulfate	70	mg/L		1		E300.0	05/21/09 00:46 / hm		IC101-H_090520A : 57	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 21:55 / ell-b		SUB-B129715 : 15	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Calcium	31	mg/L		1		E200.7	05/19/09 21:55 / ell-b		SUB-B129715 : 15	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Copper	0.005	mg/L		0.001		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 21:55 / ell-b		SUB-B129715 : 15	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 21:55 / ell-b		SUB-B129715 : 15	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Magnesium	7	mg/L		1		E200.7	05/19/09 21:55 / ell-b		SUB-B129715 : 15	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	
Potassium	6	mg/L		1		E200.7	05/19/09 21:55 / ell-b		SUB-B129715 : 15	B_R129715	
Selenium	0.005	mg/L		0.001		E200.8	05/19/09 04:43 / ell-b		SUB-B129584 : 48	B_R129584	

Report Definitions: RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-306
Lab ID: H09050213-007
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 09:45 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:43 / eli-b		SUB-B129584 : 48		B_R129584
Sodium	28	mg/L		1		E200.7	05/19/09 21:55 / eli-b		SUB-B129715 : 15		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:43 / eli-b		SUB-B129584 : 48		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:43 / eli-b		SUB-B129584 : 48		B_R129584
Zinc	0.02	mg/L		0.01		E200.8	05/19/09 04:43 / eli-b		SUB-B129584 : 48		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-307
Lab ID: H09050213-008
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 10:15 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/15/09 12:13 / hm		PH_090515A : 58	090515A-PH-W	
Conductivity	261	umhos/cm		1		A2510 B	05/15/09 10:12 / hm		COND_090515A : 1090515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:05 / hm		SOLIDS_090519A : 11	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	160	mg/L		10		A2540 C	05/19/09 15:39 / hm		SOLIDS_090519B : 12	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		1		A2320 B	05/21/09 11:56 / hm		TITTR_090521A : 17	090521A-ALK-W	
Bicarbonate as HCO3	94	mg/L		1		A2320 B	05/21/09 11:56 / hm		TITTR_090521A : 17	090521A-ALK-W	
Chloride	3	mg/L		1		E300.0	05/21/09 01:03 / hm		IC101-H_090520A : 58	R53685	
Sulfate	41	mg/L		1		E300.0	05/21/09 01:03 / hm		IC101-H_090520A : 58	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 21:59 / ell-b		SUB-B129715 : 16	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Calcium	28	mg/L		1		E200.7	05/19/09 21:59 / ell-b		SUB-B129715 : 16	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Copper	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 21:59 / ell-b		SUB-B129715 : 16	B_R129715	
Iron	0.04	mg/L		0.02		E200.7	05/19/09 21:59 / ell-b		SUB-B129715 : 16	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Magnesium	6	mg/L		1		E200.7	05/19/09 21:59 / ell-b		SUB-B129715 : 16	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	
Potassium	3	mg/L		1		E200.7	05/19/09 21:59 / ell-b		SUB-B129715 : 16	B_R129715	
Selenium	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49	B_R129584	

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

Definitions:



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-307
Lab ID: H09050213-008
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 10:15 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:47 / eli-b		SUB-B129584 : 49		B_R129584
Sodium	12	mg/L		1		E200.7	05/19/09 21:59 / eli-b		SUB-B129715 : 16		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:47 / ell-b		SUB-B129584 : 49		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:47 / eli-b		SUB-B129584 : 49		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 04:47 / eli-b		SUB-B129584 : 49		B_R129584

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-308
Lab ID: H09050213-009
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 10:30 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1	A4500-H B	05/15/09 12:17 / hm			PH_090515A : 59	090515A-PH-W	
Conductivity	277	umhos/cm		1	A2510 B	05/15/09 10:13 / hm			COND_090515A : 1190515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10	A2540 D	05/19/09 13:05 / hm			SOLIDS_090519A : 12	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	171	mg/L		10	A2540 C	05/19/09 15:40 / hm			SOLIDS_090519B : 13	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	78	mg/L		1	A2320 B	05/21/09 12:03 / hm			TITTR_090521A : 18	090521A-ALK-W	
Bicarbonate as HCO3	95	mg/L		1	A2320 B	05/21/09 12:03 / hm			TITTR_090521A : 18	090521A-ALK-W	
Chloride	4	mg/L		1	E300.0	05/21/09 01:52 / hm			IC101-H_090520A : 61	R53685	
Sulfate	47	mg/L		1	E300.0	05/21/09 01:52 / hm			IC101-H_090520A : 61	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1	E200.7	05/19/09 22:03 / eli-b			SUB-B129715 : 17	B_R129715	
Aluminum	ND	mg/L		0.1	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Antimony	ND	mg/L		0.003	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Arsenic	ND	mg/L		0.002	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Barium	ND	mg/L		0.1	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Beryllium	ND	mg/L		0.001	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Cadmium	ND	mg/L		0.001	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Calcium	30	mg/L		1	E200.7	05/19/09 22:03 / eli-b			SUB-B129715 : 17	B_R129715	
Chromium	ND	mg/L		0.001	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Cobalt	ND	mg/L		0.01	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Copper	ND	mg/L		0.001	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Gold	ND	mg/L		0.01	E200.7	05/19/09 22:03 / eli-b			SUB-B129715 : 17	B_R129715	
Iron	ND	mg/L		0.02	E200.7	05/19/09 22:03 / eli-b			SUB-B129715 : 17	B_R129715	
Lead	ND	mg/L		0.005	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Magnesium	7	mg/L		1	E200.7	05/19/09 22:03 / eli-b			SUB-B129715 : 17	B_R129715	
Manganese	ND	mg/L		0.01	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Mercury	ND	mg/L		0.001	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Nickel	ND	mg/L		0.01	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	
Potassium	3	mg/L		1	E200.7	05/19/09 22:03 / eli-b			SUB-B129715 : 17	B_R129715	
Selenium	ND	mg/L		0.001	E200.8	05/19/09 04:51 / eli-b			SUB-B129584 : 50	B_R129584	

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-308
Lab ID: H09050213-009
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 10:30 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:51 / eli-b		SUB-B129584 : 50		B_R129584
Sodium	12	mg/L		1		E200.7	05/19/09 22:03 / eli-b		SUB-B129715 : 17		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:51 / eli-b		SUB-B129584 : 50		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:51 / eli-b		SUB-B129584 : 50		B_R129584
Zinc	0.01	mg/L		0.01		E200.8	05/19/09 04:51 / eli-b		SUB-B129584 : 50		B_R129584

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
 Client Sample ID: EHR-0509-309
 Lab ID: H09050213-010
 Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
 Collection Date: 05/13/09 11:00 Date Received: 05/13/09
 Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/15/09 12:20 / hm		PH_090515A : 60	090515A-PH-W	
Conductivity	479	umhos/cm		1		A2510 B	05/15/09 10:14 / hm		COND_090515A : 1290515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:05 / hm		SOLIDS_090519A : 13	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	325	mg/L		10		A2540 C	05/19/09 15:41 / hm		SOLIDS_090519B : 14	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO ₃	120	mg/L		1		A2320 B	05/21/09 12:17 / hm		TITTR_090521A : 19	090521A-ALK-W	
Bicarbonate as HCO ₃	140	mg/L		1		A2320 B	05/21/09 12:17 / hm		TITTR_090521A : 19	090521A-ALK-W	
Chloride	6	mg/L		1		E300.0	05/21/09 02:09 / hm		IC101-H_090520A : 62	R53685	
Sulfate	110	mg/L		1		E300.0	05/21/09 02:09 / hm		IC101-H_090520A : 62	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 22:07 / eli-b		SUB-B129715 : 18	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Calcium	57	mg/L		1		E200.7	05/19/09 22:07 / eli-b		SUB-B129715 : 18	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Copper	0.002	mg/L		0.001		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 22:07 / eli-b		SUB-B129715 : 18	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 22:07 / eli-b		SUB-B129715 : 18	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Magnesium	12	mg/L		1		E200.7	05/19/09 22:07 / eli-b		SUB-B129715 : 18	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	
Potassium	5	mg/L		1		E200.7	05/19/09 22:07 / eli-b		SUB-B129715 : 18	B_R129715	
Selenium	0.005	mg/L		0.001		E200.8	05/19/09 04:55 / eli-b		SUB-B129584 : 51	B_R129584	

Report RL - Analyte reporting limit.

Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-309
Lab ID: H09050213-010
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 11:00 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 04:55 / ell-b		SUB-B129584 : 51		B_R129584
Sodium	17	mg/L		1		E200.7	05/19/09 22:07 / ell-b		SUB-B129715 : 18		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 04:55 / ell-b		SUB-B129584 : 51		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 04:55 / ell-b		SUB-B129584 : 51		B_R129584
Zinc	0.02	mg/L		0.01		E200.8	05/19/09 04:55 / ell-b		SUB-B129584 : 51		B_R129584

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-310
Lab ID: H09050213-011
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 13:15 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	05/15/09 12:22 / hm		PH_090515A : 61		090515A-PH-W
Conductivity	284	umhos/cm		1		A2510 B	05/15/09 10:16 / hm		COND_090515A : 14		90515A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:06 / hm		SOLIDS_090519A : 14		090519A-SLDS-TSS
Solids, Total Dissolved TDS @ 180 C	172	mg/L		10		A2540 C	05/19/09 15:42 / hm		SOLIDS_090519B : 15		090519A-SLDS-TDS
INORGANICS											
Alkalinity, Total as CaCO3	78	mg/L		1		A2320 B	05/21/09 12:30 / hm		TITTR_090521A : 21		090521A-ALK-W
Bicarbonate as HCO3	95	mg/L		1		A2320 B	05/21/09 12:30 / hm		TITTR_090521A : 21		090521A-ALK-W
Chloride	5	mg/L		1		E300.0	05/21/09 02:25 / hm		IC101-H_090520A : 63		R53685
Sulfate	44	mg/L		1		E300.0	05/21/09 02:25 / hm		IC101-H_090520A : 63		R53685
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 22:11 / eli-b		SUB-B129715 : 19		B_R129715
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 05:11 / eli-b		SUB-B129584 : 52		B_R129584
Antimony	ND	mg/L		0.003		E200.8	05/19/09 05:11 / eli-b		SUB-B129584 : 52		B_R129584
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Barium	ND	mg/L		0.1		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Calcium	31	mg/L		1		E200.7	05/19/09 22:11 / eli-b		SUB-B129715 : 19		B_R129715
Chromium	ND	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Copper	0.004	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Gold	ND	mg/L		0.01		E200.7	05/19/09 22:11 / eli-b		SUB-B129715 : 19		B_R129715
Iron	0.03	mg/L		0.02		E200.7	05/19/09 22:11 / ell-b		SUB-B129715 : 19		B_R129715
Lead	ND	mg/L		0.005		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Magnesium	7	mg/L		1		E200.7	05/19/09 22:11 / ell-b		SUB-B129715 : 19		B_R129715
Manganese	ND	mg/L		0.01		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Mercury	ND	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Nickel	ND	mg/L		0.01		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Potassium	3	mg/L		1		E200.7	05/19/09 22:11 / ell-b		SUB-B129715 : 19		B_R129715
Selenium	ND	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584

Report RL - Analyte reporting limit.
Definitions:

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ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-310
Lab ID: H09050213-011
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 13:15 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Sodium	12	mg/L		1		E200.7	05/19/09 22:11 / ell-b		SUB-B129715 : 19		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584
Zinc	0.02	mg/L		0.01		E200.8	05/19/09 05:11 / ell-b		SUB-B129584 : 52		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-311
Lab ID: H09050213-012
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 13:45 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/15/09 12:24 / hm		PH_090515A : 62	090515A-PH-W	
Conductivity	280	umhos/cm		1		A2510 B	05/15/09 10:17 / hm		COND_090515A : 1590515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:06 / hm		SOLID_090519A : 15 090519A-SLDS-TSS-		
Solids, Total Dissolved TDS @ 180 C	162	mg/L		10		A2540 C	05/19/09 15:42 / hm		SOLID_090519B : 16 090519A-SLDS-TDS-		
INORGANICS											
Alkalinity, Total as CaCO ₃	82	mg/L		1		A2320 B	05/21/09 12:45 / hm		TITTR_090521A : 22	090521A-ALK-W	
Bicarbonate as HCO ₃	100	mg/L		1		A2320 B	05/21/09 12:45 / hm		TITTR_090521A : 22	090521A-ALK-W	
Chloride	5	mg/L		1		E300.0	05/21/09 02:41 / hm		IC101-H_090520A : 64	R53685	
Sulfate	41	mg/L		1		E300.0	05/21/09 02:41 / hm		IC101-H_090520A : 64	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Calcium	30	mg/L		1		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Copper	0.002	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Magnesium	7	mg/L		1		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	
Potassium	3	mg/L		1		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20	B_R129715	
Selenium	ND	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53	B_R129584	

Report RL - Analyte reporting limit.

Definitions:

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-311
Lab ID: H09050213-012
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 13:45 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53		B_R129584
Sodium	12	mg/L		1		E200.7	05/19/09 22:15 / eli-b		SUB-B129715 : 20		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53		B_R129584
Zinc	0.01	mg/L		0.01		E200.8	05/19/09 05:16 / eli-b		SUB-B129584 : 53		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-312
Lab ID: H09050213-013
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 14:00 **Date Received:** 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/15/09 12:27 / hm		PH_090515A : 63	090515A-PH-W	
Conductivity	275	umhos/cm		1		A2510 B	05/15/09 10:20 / hm		COND_090515A : 1690515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:07 / hm		SOLIDS_090519A : 17	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	165	mg/L		10		A2540 C	05/19/09 15:43 / hm		SOLIDS_090519B : 18	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		1		A2320 B	05/21/09 13:00 / hm		TITTR_090521A : 23	090521A-ALK-W	
Bicarbonate as HCO3	94	mg/L		1		A2320 B	05/21/09 13:00 / hm		TITTR_090521A : 23	090521A-ALK-W	
Chloride	4	mg/L		1		E300.0	05/21/09 02:58 / hm		IC101-H_090520A : 65	R53685	
Sulfate	45	mg/L		1		E300.0	05/21/09 02:58 / hm		IC101-H_090520A : 65	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 22:27 / eli-b		SUB-B129715 : 21	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Calcium	29	mg/L		1		E200.7	05/19/09 22:27 / eli-b		SUB-B129715 : 21	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54	B_R129584	
Copper	0.002	mg/L		0.001		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 22:27 / eli-b		SUB-B129715 : 21	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 22:27 / ell-b		SUB-B129715 : 21	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Magnesium	7	mg/L		1		E200.7	05/19/09 22:27 / ell-b		SUB-B129715 : 21	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	
Potassium	3	mg/L		1		E200.7	05/19/09 22:27 / ell-b		SUB-B129715 : 21	B_R129715	
Selenium	ND	mg/L		0.001		E200.8	05/19/09 05:20 / ell-b		SUB-B129584 : 54	B_R129584	

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-312
Lab ID: H09050213-013
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 14:00 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54		B_R129584
Sodium	13	mg/L		1		E200.7	05/19/09 22:27 / eli-b		SUB-B129715 : 21		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 05:20 / eli-b		SUB-B129584 : 54		B_R129584

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-313
Lab ID: H09050213-014
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 14:15 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1	A4500-H B	05/15/09 12:28 / hm			PH_090515A : 64	090515A-PH-W	
Conductivity	274	umhos/cm		1	A2510 B	05/15/09 10:20 / hm			COND_090515A : 1790515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10	A2540 D	05/19/09 13:07 / hm			SOLIDS_090519A : 18	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	165	mg/L		10	A2540 C	05/19/09 15:43 / hm			SOLIDS_090519B : 19	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		1	A2320 B	05/21/09 13:40 / hm			TITTR_090521A : 26	090521A-ALK-W	
Bicarbonate as HCO3	94	mg/L		1	A2320 B	05/21/09 13:40 / hm			TITTR_090521A : 26	090521A-ALK-W	
Chloride	4	mg/L		1	E300.0	05/21/09 03:14 / hm			IC101-H_090520A : 66	R53685	
Sulfate	45	mg/L		1	E300.0	05/21/09 03:14 / hm			IC101-H_090520A : 66	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1	E200.7	05/19/09 22:31 / ell-b			SUB-B129715 : 8	B_R129715	
Aluminum	ND	mg/L		0.1	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Antimony	ND	mg/L		0.003	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Arsenic	ND	mg/L		0.002	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Barium	ND	mg/L		0.1	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Beryllium	ND	mg/L		0.001	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Cadmium	ND	mg/L		0.001	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Calcium	29	mg/L		1	E200.7	05/19/09 22:31 / ell-b			SUB-B129715 : 8	B_R129715	
Chromium	ND	mg/L		0.001	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Cobalt	ND	mg/L		0.01	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Copper	0.001	mg/L		0.001	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Gold	ND	mg/L		0.01	E200.7	05/19/09 22:31 / ell-b			SUB-B129715 : 8	B_R129715	
Iron	ND	mg/L		0.02	E200.7	05/19/09 22:31 / ell-b			SUB-B129715 : 8	B_R129715	
Lead	ND	mg/L		0.005	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Magnesium	6	mg/L		1	E200.7	05/19/09 22:31 / ell-b			SUB-B129715 : 8	B_R129715	
Manganese	ND	mg/L		0.01	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Mercury	ND	mg/L		0.001	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Nickel	ND	mg/L		0.01	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	
Potassium	3	mg/L		1	E200.7	05/19/09 22:31 / ell-b			SUB-B129715 : 8	B_R129715	
Selenium	ND	mg/L		0.001	E200.8	05/19/09 05:40 / ell-b			SUB-B129584 : 41	B_R129584	

Report RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-313
Lab ID: H09050213-014
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 14:15 Date Received: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 05:40 / eli-b		SUB-B129584 : 41		B_R129584
Sodium	13	mg/L		1		E200.7	05/19/09 22:31 / eli-b		SUB-B129715 : 8		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 05:40 / eli-b		SUB-B129584 : 41		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 05:40 / eli-b		SUB-B129584 : 41		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 05:40 / eli-b		SUB-B129584 : 41		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
 Client Sample ID: EHR-0509-314
 Lab ID: H09050213-015
 Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
 Collection Date: 05/13/09 14:30 Date Received: 05/13/09
 Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.		0.1		A4500-H B	05/15/09 12:37 / hm		PH_090515A : 66	090515A-PH-W	
Conductivity	2	umhos/cm		1		A2510 B	05/15/09 10:23 / hm		COND_090515A : 1990515A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/19/09 13:08 / hm		SOLIDS_090519A : 19	090519A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/19/09 15:44 / hm		SOLIDS_090519B : 20	090519A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	05/21/09 13:44 / hm		TITTR_090521A : 27	090521A-ALK-W	
Bicarbonate as HCO3	2	mg/L		1		A2320 B	05/21/09 13:44 / hm		TITTR_090521A : 27	090521A-ALK-W	
Chloride	ND	mg/L		1		E300.0	05/21/09 03:31 / hm		IC101-H_090520A : 67	R53685	
Sulfate	ND	mg/L		1		E300.0	05/21/09 03:31 / hm		IC101-H_090520A : 67	R53685	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/19/09 22:43 / ell-b		SUB-B129715 : 9	B_R129715	
Aluminum	ND	mg/L		0.1		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Antimony	ND	mg/L		0.003		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Arsenic	ND	mg/L		0.002		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Barium	ND	mg/L		0.1		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Beryllium	ND	mg/L		0.001		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Cadmium	ND	mg/L		0.001		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Calcium	ND	mg/L		1		E200.7	05/19/09 22:43 / ell-b		SUB-B129715 : 9	B_R129715	
Chromium	ND	mg/L		0.001		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Cobalt	ND	mg/L		0.01		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Copper	ND	mg/L		0.001		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Gold	ND	mg/L		0.01		E200.7	05/19/09 22:43 / ell-b		SUB-B129715 : 9	B_R129715	
Iron	ND	mg/L		0.02		E200.7	05/19/09 22:43 / ell-b		SUB-B129715 : 9	B_R129715	
Lead	ND	mg/L		0.005		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Magnesium	ND	mg/L		1		E200.7	05/19/09 22:43 / ell-b		SUB-B129715 : 9	B_R129715	
Manganese	ND	mg/L		0.01		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Mercury	ND	mg/L		0.001		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Nickel	ND	mg/L		0.01		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	
Potassium	ND	mg/L		1		E200.7	05/19/09 22:43 / ell-b		SUB-B129715 : 9	B_R129715	
Selenium	ND	mg/L		0.001		E200.8	05/19/09 05:44 / ell-b		SUB-B129584 : 42	B_R129584	

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ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-314
Lab ID: H09050213-015
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/13/09 14:30 DateReceived: 05/13/09
Report Date: 05/22/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.8	05/19/09 05:44 / eli-b		SUB-B129584 : 42		B_R129584
Sodium	ND	mg/L		1		E200.7	05/19/09 22:43 / eli-b		SUB-B129715 : 9		B_R129715
Thallium	ND	mg/L		0.001		E200.8	05/19/09 05:44 / eli-b		SUB-B129584 : 42		B_R129584
Vanadium	ND	mg/L		0.01		E200.8	05/19/09 05:44 / eli-b		SUB-B129584 : 42		B_R129584
Zinc	ND	mg/L		0.01		E200.8	05/19/09 05:44 / eli-b		SUB-B129584 : 42		B_R129584

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: 090515A-COND-PROBE

Run ID :Run Order: COND_090515A: 1		SampType: Laboratory Control Sample				Sample ID: LCS1_090515A				Method: A2510 B		
Analysis Date: 05/15/09 11:19		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		1410	1.0	1412		100	90	110				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: COND_090515A: 7		SampType: Sample Duplicate				Sample ID: H09050213-005ADUP				Method: A2510 B		
Analysis Date: 05/15/09 10:09		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		296	1.0						294.2	0.4	10	
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: COND_090515A: 13		SampType: Continuing Calibration Verification Standard				Sample ID: CCV1_090515A				Method: A2510 B		
Analysis Date: 05/15/09 10:15		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		723	1.0	718		101	90	110				
Associated samples: H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: COND_090515A: 18		SampType: Sample Duplicate				Sample ID: H09050213-014ADUP				Method: A2510 B		
Analysis Date: 05/15/09 10:21		Units: umhos/cm				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity		274	1.0						274.2	0	10	
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: 090515A-PH-W

Run ID :Run Order: PH_090515A: 1		SampType: Laboratory Control Sample				Sample ID: LCS1_090515A				Method: A4500-H B		
Analysis Date: 05/15/09 11:48		Units: s.u.				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH		7.07	0.10	7		101	99	101				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: PH_090515A: 46		SampType: Continuing Calibration Verification Standard				Sample ID: CCV4_090515A				Method: A4500-H B		
Analysis Date: 05/15/09 15:57		Units: s.u.				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH		10.0	0.10	10		100	99	101				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A												
Run ID :Run Order: PH_090515A: 54		SampType: Sample Duplicate				Sample ID: H09050213-005ADUP				Method: A4500-H B		
Analysis Date: 05/15/09 12:04		Units: s.u.				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH		7.38	0.10						7.43	0.7	2	
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: PH_090515A: 57		SampType: Continuing Calibration Verification Standard				Sample ID: CCV5_090515A				Method: A4500-H B		
Analysis Date: 05/15/09 12:10		Units: s.u.				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH		10.0	0.10	10		100	99	101				
Associated samples: H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: PH_090515A: 65		SampType: Sample Duplicate				Sample ID: H09050213-014ADUP				Method: A4500-H B		
Analysis Date: 05/15/09 12:30		Units: s.u.				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH		7.58	0.10						7.55	0.4	2	
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: 090519A-SLDS-TDS-W

Run ID :Run Order: SOLIDS_090519B: 1		SampType: Method Blank				Sample ID: MBLK1_090519A				Method: A2540 C		
Analysis Date: 05/19/09 15:32		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0										
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519B: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090519A				Method: A2540 C		
Analysis Date: 05/19/09 15:32		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	979	10	1000			98	90	110				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519B: 10		SampType: Sample Matrix Spike				Sample ID: H09050213-007AMS				Method: A2540 C		
Analysis Date: 05/19/09 15:37		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2180	10	2000	214		98	80	120				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519B: 11		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050213-007AMSD				Method: A2540 C		
Analysis Date: 05/19/09 15:38		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2190	10	2000	214		99	80	120	2180	0.4	10	
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519B: 17		SampType: Sample Duplicate				Sample ID: H09050213-012ADUP				Method: A2540 C		
Analysis Date: 05/19/09 15:43		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	164	10							162	1.2	20	
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Work Order: H09050213

BatchID: 090519A-SLDS-TDS-W

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: SOLIDS_090519B: 27 SampType: Sample Matrix Spike Sample ID: H09050233-006AMS Method: A2540 C

Analysis Date: 05/19/09 15:46 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Solids, Total Dissolved TDS @ 180 C	3330	10	2000	1376	98	80	120				
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Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A;
H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Run ID :Run Order: SOLIDS_090519B: 28 SampType: Sample Matrix Spike Duplicate Sample ID: H09050233-006AMSD Method: A2540 C

Analysis Date: 05/19/09 15:47 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Solids, Total Dissolved TDS @ 180 C	3330	10	2000	1376	98	80	120	3328	0.1	10	
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Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A;
H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: 090519A-SLDS-TSS-W

Run ID :Run Order: SOLIDS_090519A: 1		SampType: Method Blank				Sample ID: MBLK1_090519A				Method: A2540 D		
Analysis Date: 05/19/09 16:04		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C	ND	1										
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519A: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090519A				Method: A2540 D		
Analysis Date: 05/19/09 16:10		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C	1940	10	2000		97	70	130					
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519A: 10		SampType: Sample Duplicate				Sample ID: H09050213-007ADUP				Method: A2540 D		
Analysis Date: 05/19/09 13:04		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C	2.00	10										
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: SOLIDS_090519A: 16		SampType: Sample Duplicate				Sample ID: H09050213-012ADUP				Method: A2540 D		
Analysis Date: 05/19/09 13:06		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C	1.00	10										
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: 090521A-ALK-W

Run ID :Run Order: TITTR_090521A: 1		SampType: Method Blank				Sample ID: MBLK1_090521A				Method: A2320 B		
Analysis Date: 05/21/09 08:45		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	2	1										
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: TITTR_090521A: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090521A				Method: A2320 B		
Analysis Date: 05/21/09 09:02		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	590	4.0	600	1.996	98	90	110					
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: TITTR_090521A: 11		SampType: Sample Matrix Spike				Sample ID: H09050213-004AMS				Method: A2320 B		
Analysis Date: 05/21/09 10:52		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	660	4.0	600	86.83	95	90	110					
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: TITTR_090521A: 12		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050213-004AMSD				Method: A2320 B		
Analysis Date: 05/21/09 10:59		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	650	4.0	600	86.83	94	90	110	655.7	0.8	20		
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: TITTR_090521A: 16		SampType: Continuing Calibration Verification Standard				Sample ID: CCV1_090521A				Method: A2320 B		
Analysis Date: 05/21/09 11:49		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	1000	4.0	1000		104	90	110					
Associated samples: H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Work Order: H09050213

BatchID: 090521A-ALK-W

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: TITTR_090521A: 20

SampType: Sample Duplicate

Sample ID: H09050213-010ADUP

Method: A2320 B

Analysis Date: 05/21/09 12:22

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 2

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Alkalinity, Total as CaCO₃

120

4.0

115.8

1.7

20

Bicarbonate as HCO₃

140

4.0

141.2

1.7

20

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A;
H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Run ID :Run Order: TITTR_090521A: 24

SampType: Sample Matrix Spike

Sample ID: H09050213-013AMS

Method: A2320 B

Analysis Date: 05/21/09 13:21

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 1

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Alkalinity, Total as CaCO₃

640

4.0

600

76.85

94

90

110

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A;
H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Run ID :Run Order: TITTR_090521A: 25

SampType: Sample Matrix Spike Duplicate

Sample ID: H09050213-013AMSD

Method: A2320 B

Analysis Date: 05/21/09 13:30

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 1

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit Qual

Alkalinity, Total as CaCO₃

640

4.0

600

76.85

94

90

110

638.7

0.6

20

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A;
H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Work Order: H09050213

BatchID: B_R129584

Run ID :Run Order: SUB-B129584: 14

SampType: Initial Calibration Verification Standard

Sample ID: QCS - 081021A,090401E,
080814C

Method: E200.8

Analysis Date: 05/18/09 10:21

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes	18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		0.24	0.10	0.25		98	90	110				
Antimony		0.050	0.050	0.05		100	90	110				
Arsenic		0.051	0.0050	0.05		101	90	110				
Barium		0.050	0.10	0.05		100	90	110				
Beryllium		0.025	0.0010	0.025		101	90	110				
Cadmium		0.025	0.0010	0.025		100	90	110				
Chromium		0.051	0.010	0.05		102	90	110				
Cobalt		0.051	0.010	0.05		102	90	110				
Copper		0.050	0.010	0.05		100	90	110				
Lead		0.050	0.010	0.05		100	90	110				
Manganese		0.25	0.010	0.25		98	90	110				
Mercury		0.0019	0.0010	0.002		96	90	110				
Nickel		0.051	0.010	0.05		101	90	110				
Selenium		0.052	0.0050	0.05		103	90	110				
Silver		0.023	0.0050	0.025		91	90	110				
Thallium		0.050	0.10	0.05		100	90	110				
Vanadium		0.052	0.10	0.05		104	90	110				
Zinc		0.051	0.010	0.05		102	90	110				

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 15

SampType: Method Blank

Sample ID: LRB

Method: E200.8

Analysis Date: 05/18/09 11:01

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes	18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		0.0005	0.0001									
Antimony		ND	1E-05									
Arsenic		ND	4E-05									
Barium		ND	3E-05									
Beryllium		ND	3E-05									
Cadmium		3E-05	9E-06									
Chromium		ND	4E-05									
Cobalt		3E-05	1E-05									
Copper		0.0002	7E-05									

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129584

Run ID :Run Order: SUB-B129584: 15		SampType: Method Blank			Sample ID: LRB				Method: E200.8		
Analysis Date: 05/18/09 11:01		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3E-05	8E-06									
Manganese	0.0002	5E-05									
Mercury	ND	1E-05									
Nickel	5E-05	3E-05									
Selenium	0.0004	0.0001									
Silver	ND	3E-05									
Thallium	ND	7E-06									
Vanadium	8E-05	3E-05									
Zinc	0.001	3E-05									

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 16		SampType: Laboratory Fortified Blank			Sample ID: LFB				Method: E200.8		
Analysis Date: 05/18/09 11:05		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.048	0.10	0.05	0.0005	95	85	115				
Antimony	0.050	0.050	0.05		99	85	115				
Arsenic	0.050	0.0050	0.05		99	85	115				
Barium	0.049	0.10	0.05		99	85	115				
Beryllium	0.047	0.0010	0.05		95	85	115				
Cadmium	0.050	0.0010	0.05	0.00003	100	85	115				
Chromium	0.053	0.010	0.05		105	85	115				
Cobalt	0.052	0.010	0.05	0.00003	105	85	115				
Copper	0.050	0.010	0.05	0.00021	100	85	115				
Lead	0.051	0.010	0.05	0.00003	101	85	115				
Manganese	0.052	0.010	0.05	0.00024	104	85	115				
Mercury	0.0010	0.0010	0.001		103	85	115				
Nickel	0.051	0.010	0.05	0.00005	101	85	115				
Selenium	0.050	0.0050	0.05	0.00037	99	85	115				
Silver	0.018	0.0050	0.02		89	85	115				
Thallium	0.050	0.10	0.05		101	85	115				
Vanadium	0.053	0.10	0.05	0.00008	105	85	115				
Zinc	0.052	0.010	0.05	0.00142	101	85	115				

Qualifiers: ND - Not Detected at the Reporting Limit
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A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Run ID :Run Order: SUB-B129584: 16	SampType: Laboratory Fortified Blank				Sample ID: LFB				Method: E200.8		
Analysis Date: 05/18/09 11:05	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 19	SampType: Initial Calibration Verification Standard				Sample ID: QCS - 081021A,090401E, ME080814C				Method: E200.8		
Analysis Date: 05/18/09 14:30	Units: mg/L				Prep Info: Prep Date:				Prep Method:		

Analytes 18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.24	0.10	0.25		97	90	110				
Antimony	0.050	0.050	0.05		99	90	110				
Arsenic	0.050	0.0050	0.05		100	90	110				
Barium	0.050	0.10	0.05		100	90	110				
Beryllium	0.025	0.0010	0.025		100	90	110				
Cadmium	0.025	0.0010	0.025		99	90	110				
Chromium	0.051	0.010	0.05		101	90	110				
Cobalt	0.052	0.010	0.05		104	90	110				
Copper	0.051	0.010	0.05		101	90	110				
Lead	0.050	0.010	0.05		100	90	110				
Manganese	0.24	0.010	0.25		98	90	110				
Mercury	0.0019	0.0010	0.002		95	90	110				
Nickel	0.051	0.010	0.05		101	90	110				
Selenium	0.051	0.0050	0.05		101	90	110				
Silver	0.023	0.0050	0.025		90	90	110				
Thallium	0.050	0.10	0.05		101	90	110				
Vanadium	0.052	0.10	0.05		104	90	110				
Zinc	0.051	0.010	0.05		102	90	110				

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 38	SampType: Sample Matrix Spike				Sample ID: B09051172-007BMS				Method: E200.8		
Analysis Date: 05/18/09 21:40	Units: mg/L				Prep Info: Prep Date:				Prep Method:		

Analytes 18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.274	0.10	0.25		110	70	130				
Antimony	0.269	0.0050	0.25	0.00015	108	70	130				
Arsenic	0.289	0.0050	0.25	0.01185	111	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129584

Run ID :Run Order: SUB-B129584: 38		SampType: Sample Matrix Spike				Sample ID: B09051172-007BMS				Method: E200.8		
Analysis Date: 05/18/09 21:40		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.303	0.10	0.25	0.0422	104	70	130				
Beryllium		0.266	0.0010	0.25		106	70	130				
Cadmium		0.274	0.0010	0.25	0.00115	109	70	130				
Chromium		0.278	0.010	0.25	0.00165	110	70	130				
Cobalt		0.281	0.010	0.25	0.0022	112	70	130				
Copper		0.269	0.010	0.25	0.00175	107	70	130				
Lead		0.272	0.010	0.25	0.0002	109	70	130				
Manganese		0.278	0.010	0.25	0.0035	110	70	130				
Mercury		0.00545	0.0010	0.005	0.00025	104	70	130				
Nickel		0.274	0.010	0.25	0.00775	107	70	130				
Selenium		0.384	0.0050	0.25	0.1086	110	70	130				
Silver		0.0681	0.0050	0.1		68	70	130				S
Thallium		0.271	0.0050	0.25		108	70	130				
Vanadium		0.288	0.10	0.25	0.00145	115	70	130				
Zinc		0.271	0.010	0.25	0.00635	106	70	130				

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 39		SampType: Sample Matrix Spike Duplicate				Sample ID: B09051172-007BMSD				Method: E200.8		
Analysis Date: 05/18/09 21:44		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		0.279	0.10	0.25		112	70	130	0.2743	1.8	20	
Antimony		0.264	0.0050	0.25	0.00015	106	70	130	0.2692	1.8	20	
Arsenic		0.281	0.0050	0.25	0.01185	108	70	130	0.2892	2.9	20	
Barium		0.298	0.10	0.25	0.0422	102	70	130	0.3027	1.5	20	
Beryllium		0.263	0.0010	0.25		105	70	130	0.2659	1.2	20	
Cadmium		0.268	0.0010	0.25	0.00115	107	70	130	0.2739	2.2	20	
Chromium		0.273	0.010	0.25	0.00165	109	70	130	0.2778	1.7	20	
Cobalt		0.274	0.010	0.25	0.0022	109	70	130	0.2815	2.8	20	
Copper		0.261	0.010	0.25	0.00175	104	70	130	0.2695	3.4	20	
Lead		0.267	0.010	0.25	0.0002	107	70	130	0.272	1.7	20	
Manganese		0.272	0.010	0.25	0.0035	107	70	130	0.278	2.3	20	
Mercury		0.00554	0.0010	0.005	0.00025	106	70	130	0.00545	1.6	20	
Nickel		0.265	0.010	0.25	0.00775	103	70	130	0.2741	3.3	20	

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Work Order: H09050213

BatchID: B_R129584

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: SUB-B129584: 39

SampType: Sample Matrix Spike Duplicate

Sample ID: B09051172-007BMSD

Method: E200.8

Analysis Date: 05/18/09 21:44

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 18

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Selenium

0.373

0.0050

0.25

0.1086

106

70

130

0.3842

3.1

20

Silver

0.0807

0.0050

0.1

81

70

130

0.06805

17

20

Thallium

0.265

0.0050

0.25

106

70

130

0.2706

2.2

20

Vanadium

0.280

0.10

0.25

0.00145

111

70

130

0.2879

2.9

20

Zinc

0.264

0.010

0.25

0.00635

103

70

130

0.2706

2.6

20

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 55

SampType: Initial Calibration Verification Standard

Sample ID: QCS - 081021A,090401E,
ME080814C

Method: E200.8

Analysis Date: 05/18/09 22:45

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 18

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Aluminum

0.26

0.10

0.25

104

90

110

Antimony

0.049

0.050

0.05

97

90

110

Arsenic

0.050

0.0050

0.05

99

90

110

Barium

0.050

0.10

0.05

100

90

110

Beryllium

0.025

0.0010

0.025

99

90

110

Cadmium

0.024

0.0010

0.025

98

90

110

Chromium

0.050

0.010

0.05

100

90

110

Cobalt

0.050

0.010

0.05

99

90

110

Copper

0.048

0.010

0.05

97

90

110

Lead

0.049

0.010

0.05

98

90

110

Manganese

0.24

0.010

0.25

95

90

110

Mercury

0.0019

0.0010

0.002

96

90

110

Nickel

0.049

0.010

0.05

98

90

110

Selenium

0.050

0.0050

0.05

100

90

110

Silver

0.025

0.0050

0.025

100

90

110

Thallium

0.050

0.10

0.05

99

90

110

Vanadium

0.051

0.10

0.05

102

90

110

Zinc

0.050

0.010

0.05

99

90

110

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129584

Run ID :Run Order: SUB-B129584: 56

SampType: Sample Matrix Spike

Sample ID: B09051159-004AMS

Method: E200.8

Analysis Date: 05/19/09 03:14

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 18

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit Qual

Aluminum	0.059	0.10	0.05	0.00443	108	70	130				
Antimony	0.050	0.0030	0.05	0.00006	100	70	130				
Arsenic	0.052	0.0010	0.05	0.00062	103	70	130				
Barium	0.084	0.10	0.05	0.0353	98	70	130				
Beryllium	0.049	0.0010	0.05		98	70	130				
Cadmium	0.052	0.0010	0.05	0.00112	101	70	130				
Chromium	0.052	0.010	0.05	0.00048	104	70	130				
Cobalt	0.052	0.010	0.05	0.00014	103	70	130				
Copper	0.050	0.010	0.05	0.00085	99	70	130				
Lead	0.050	0.0010	0.05	0.00002	100	70	130				
Manganese	0.051	0.010	0.05	0.00077	101	70	130				
Mercury	0.0010	0.00020	0.001		104	70	130				
Nickel	0.051	0.010	0.05	0.00133	98	70	130				
Selenium	0.053	0.0050	0.05	0.0006	105	70	130				
Silver	0.018	0.0050	0.02		90	70	130				
Thallium	0.050	0.0010	0.05	0.00002	100	70	130				
Vanadium	0.053	0.10	0.05	0.00097	105	70	130				
Zinc	0.051	0.010	0.05	0.00049	102	70	130				

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 57

SampType: Sample Matrix Spike Duplicate

Sample ID: B09051159-004AMSD

Method: E200.8

Analysis Date: 05/19/09 03:18

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 18

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD RPDLimit Qual

Aluminum	0.059	0.10	0.05	0.00443	110	70	130	0.05855		20	
Antimony	0.051	0.0030	0.05	0.00006	102	70	130	0.05009	1.9	20	
Arsenic	0.053	0.0010	0.05	0.00062	105	70	130	0.05206	2	20	
Barium	0.085	0.10	0.05	0.0353	100	70	130	0.08439		20	
Beryllium	0.051	0.0010	0.05		101	70	130	0.04913	2.8	20	
Cadmium	0.052	0.0010	0.05	0.00112	103	70	130	0.0516	1.7	20	
Chromium	0.053	0.010	0.05	0.00048	105	70	130	0.05233	1.1	20	
Cobalt	0.052	0.010	0.05	0.00014	104	70	130	0.05156	0.9	20	
Copper	0.051	0.010	0.05	0.00085	100	70	130	0.05021	1.7	20	
Lead	0.051	0.0010	0.05	0.00002	103	70	130	0.05009	2.8	20	

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Work Order: H09050213

BatchID: B_R129584

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: SUB-B129584: 57

SampType: Sample Matrix Spike Duplicate

Sample ID: B09051159-004AMSD

Method: E200.8

Analysis Date: 05/19/09 03:18

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 18

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Manganese

0.053

0.010

0.05

0.00077

104

70

130

0.05148

2

20

Mercury

0.00093

0.00020

0.001

93

70

130

0.00104

11

20

Nickel

0.051

0.010

0.05

0.00133

100

70

130

0.05056

1.6

20

Selenium

0.054

0.0050

0.05

0.0006

107

70

130

0.05286

2.4

20

Silver

0.020

0.0050

0.02

100

70

130

0.01791

11

20

Thallium

0.051

0.0010

0.05

0.00002

103

70

130

0.05006

2.5

20

Vanadium

0.054

0.10

0.05

0.00097

106

70

130

0.05333

20

Zinc

0.052

0.010

0.05

0.00049

103

70

130

0.05138

0.7

20

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129584: 58

SampType: Sample Matrix Spike

Sample ID: H09050213-010B

Method: E200.8

Analysis Date: 05/19/09 04:59

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 18

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Aluminum

0.248

0.10

0.25

99

70

130

Antimony

0.257

0.0050

0.25

0.0001

103

70

130

Arsenic

0.255

0.0050

0.25

0.00065

102

70

130

Barium

0.325

0.10

0.25

0.0736

101

70

130

Beryllium

0.252

0.0010

0.25

101

70

130

Cadmium

0.258

0.0010

0.25

0.0001

103

70

130

Chromium

0.260

0.010

0.25

104

70

130

Cobalt

0.261

0.010

0.25

0.00025

104

70

130

Copper

0.252

0.010

0.25

0.00225

100

70

130

Lead

0.256

0.010

0.25

0.00015

102

70

130

Manganese

0.260

0.010

0.25

0.0021

103

70

130

Mercury

0.00510

0.0010

0.005

102

70

130

Nickel

0.252

0.010

0.25

0.00205

100

70

130

Selenium

0.254

0.0050

0.25

0.00515

99

70

130

Silver

0.0992

0.0050

0.1

99

70

130

Thallium

0.253

0.0050

0.25

101

70

130

Vanadium

0.265

0.10

0.25

0.00135

105

70

130

Zinc

0.269

0.010

0.25

0.0219

99

70

130

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;

H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129584

Run ID :Run Order: SUB-B129584: 59			SampType: Sample Matrix Spike Duplicate			Sample ID: H09050213-010B				Method: E200.8		
Analysis Date: 05/19/09 05:03		Units: mg/L			Prep Info:		Prep Date:		Prep Method:			
Analytes 18	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aluminum	0.245	0.10	0.25		98	70	130	0.2484	1.4	20		
Antimony	0.256	0.0050	0.25	0.0001	103	70	130	0.2571	0.3	20		
Arsenic	0.258	0.0050	0.25	0.00065	103	70	130	0.2549	1.2	20		
Barium	0.324	0.10	0.25	0.0736	100	70	130	0.3251	0.4	20		
Beryllium	0.252	0.0010	0.25		101	70	130	0.2523	0.3	20		
Cadmium	0.257	0.0010	0.25	0.0001	103	70	130	0.2581	0.5	20		
Chromium	0.266	0.010	0.25		106	70	130	0.2599	2.2	20		
Cobalt	0.264	0.010	0.25	0.00025	105	70	130	0.2614	0.9	20		
Copper	0.255	0.010	0.25	0.00225	101	70	130	0.2516	1.5	20		
Lead	0.257	0.010	0.25	0.00015	103	70	130	0.2564	0.1	20		
Manganese	0.263	0.010	0.25	0.0021	104	70	130	0.2596	1.4	20		
Mercury	0.00525	0.0010	0.005		105	70	130	0.0051	3	20		
Nickel	0.255	0.010	0.25	0.00205	101	70	130	0.252	1.2	20		
Selenium	0.259	0.0050	0.25	0.00515	102	70	130	0.2538	2.2	20		
Silver	0.101	0.0050	0.1		101	70	130	0.0992	1.3	20		
Thallium	0.255	0.0050	0.25		102	70	130	0.2535	0.6	20		
Vanadium	0.269	0.10	0.25	0.00135	107	70	130	0.2647	1.6	20		
Zinc	0.272	0.010	0.25	0.0219	100	70	130	0.2692	1.2	20		

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129715

Run ID :Run Order: SUB-B129715: 2 SampType: Continuing Calibration Verification Standard Sample ID: ICV Method: E200.7

Analysis Date: 05/19/09 09:17 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	2.56	0.10	2.5		103	95	105				
Calcium	24.9	1.0	25		100	95	105				
Gold	2.52	0.0043	2.5		101	95	105				
Iron	2.57	0.030	2.5		103	95	105				
Magnesium	25.0	1.0	25		100	95	105				
Potassium	24.1	1.0	25		96	95	105				
Sodium	25.0	1.0	25		100	95	105				

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129715: 3 SampType: Method Blank Sample ID: MB-SPDIS090519A Method: E200.7

Analysis Date: 05/19/09 10:06 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	ND	0.02									
Calcium	ND	0.009									
Gold	ND	0.004									
Iron	ND	0.002									
Magnesium	ND	0.01									
Potassium	ND	0.01									
Sodium	ND	0.03									

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Run ID :Run Order: SUB-B129715: 4 SampType: Laboratory Fortified Blank Sample ID: LFB-SPDIS090519A Method: E200.7

Analysis Date: 05/19/09 10:10 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	1.01	0.10	1		101	85	115				
Calcium	49.8	1.0	50		100	85	115				
Gold	1.02	0.0045	1		102	85	115				
Iron	5.11	0.030	5		102	85	115				
Magnesium	50.1	1.0	50		100	85	115				
Potassium	43.3	1.0	50		87	85	115				
Sodium	48.3	1.0	50		97	85	115				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129715

Run ID : Run Order: SUB-B129715: 4		SampType: Laboratory Fortified Blank				Sample ID: LFB-SPDIS090519A				Method: E200.7		
Analysis Date: 05/19/09 10:10		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B; H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B												
Run ID : Run Order: SUB-B129715: 5		SampType: Sample Matrix Spike				Sample ID: B09051220-004CMS2				Method: E200.7		
Analysis Date: 05/19/09 14:49		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	120.3	1.0	50	73.5	94	70	130					
Gold	0.5706	0.010	1		57	70	130				S	
Iron	5.039	0.030	5		101	70	130					
Magnesium	92.80	1.0	50	42.11	101	70	130					
Potassium	54.38	1.0	50	5.22	98	70	130					
Sodium	103.6	1.0	50	54.7	98	70	130					
Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B; H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B												
Run ID : Run Order: SUB-B129715: 6		SampType: Sample Matrix Spike Duplicate				Sample ID: B09051220-004CMSD2				Method: E200.7		
Analysis Date: 05/19/09 14:53		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	121.4	1.0	50	73.5	96	70	130	120.3	0.9	20		
Gold	0.7004	0.010	1		70	70	130	0.5706	20	20	R	
Iron	5.123	0.030	5		102	70	130	5.039	1.7	20		
Magnesium	93.83	1.0	50	42.11	103	70	130	92.8	1.1	20		
Potassium	54.08	1.0	50	5.22	98	70	130	54.38	0.6	20		
Sodium	104.5	1.0	50	54.7	100	70	130	103.6	0.9	20		
Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B; H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B												
Run ID : Run Order: SUB-B129715: 22		SampType: Sample Matrix Spike				Sample ID: H09050213-005B				Method: E200.7		
Analysis Date: 05/19/09 21:43		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Tellurium	1.01	0.018	1	0.02478	99	70	130					
Calcium	80.0	1.0	50	31.99	96	70	130					
Gold	0.949	0.010	1		95	70	130					
Iron	4.92	0.030	5		98	70	130					

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129715

Run ID :Run Order: SUB-B129715: 22		SampType: Sample Matrix Spike				Sample ID: H09050213-005B				Method: E200.7		
Analysis Date: 05/19/09 21:43		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium		55.9	1.0	50	7.08	98	70	130				
Potassium		53.1	1.0	50	2.947	100	70	130				
Sodium		59.9	1.0	50	13.11	94	70	130				
Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B; H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B												
Run ID :Run Order: SUB-B129715: 23		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050213-005B				Method: E200.7		
Analysis Date: 05/19/09 21:47		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium		1.03	0.018	1	0.02478	100	70	130	1.014	1.3	20	
Calcium		79.6	1.0	50	31.99	95	70	130	80.03	0.5	20	
Gold		0.961	0.010	1		96	70	130	0.9486	1.3	20	
Iron		4.95	0.030	5		99	70	130	4.923	0.6	20	
Magnesium		56.2	1.0	50	7.08	98	70	130	55.93	0.6	20	
Potassium		52.2	1.0	50	2.947	99	70	130	53.15	1.8	20	
Sodium		60.3	1.0	50	13.11	94	70	130	59.95	0.5	20	
Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B; H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B												
Run ID :Run Order: SUB-B129715: 24		SampType: Sample Matrix Spike				Sample ID: H09050213-014B				Method: E200.7		
Analysis Date: 05/19/09 22:35		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium		1.03	0.018	1	0.03539	99	70	130				
Calcium		77.0	1.0	50	28.95	96	70	130				
Gold		0.947	0.010	1		95	70	130				
Iron		4.96	0.030	5		99	70	130				
Magnesium		55.4	1.0	50	6.49	98	70	130				
Potassium		51.6	1.0	50	2.673	98	70	130				
Sodium		58.9	1.0	50	12.9	92	70	130				
Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B; H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B												

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: B_R129715

Run ID :Run Order: SUB-B129715: 25			SampType: Sample Matrix Spike Duplicate			Sample ID: H09050213-014B				Method: E200.7		
Analysis Date: 05/19/09 22:39		Units: mg/L			Prep Info:		Prep Date:		Prep Method:			
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Tellurium	1.02	0.018	1	0.03539	99	70	130	1.027	0.4	20		
Calcium	75.9	1.0	50	28.95	94	70	130	77.04	1.5	20		
Gold	0.967	0.010	1		97	70	130	0.9466	2.2	20		
Iron	4.86	0.030	5		97	70	130	4.96	2	20		
Magnesium	54.5	1.0	50	6.49	96	70	130	55.41	1.7	20		
Potassium	50.6	1.0	50	2.673	96	70	130	51.6	2	20		
Sodium	58.5	1.0	50	12.9	91	70	130	58.92	0.7	20		

Associated samples: H09050213-001B; H09050213-002B; H09050213-003B; H09050213-004B; H09050213-005B; H09050213-006B; H09050213-007B; H09050213-008B;
H09050213-009B; H09050213-010B; H09050213-011B; H09050213-012B; H09050213-013B; H09050213-014B; H09050213-015B

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: R53685

Run ID :Run Order: IC101-H_090520A: 14		SampType: Initial Calibration Verification Standard				Sample ID: ICV				Method: E300.0		
Analysis Date: 05/20/09 13:00		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		2.6	1.0	2.5		106	90	110				
Sulfate		9.3	1.0	10		93	90	110				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: IC101-H_090520A: 15		SampType: Laboratory Control Sample				Sample ID: LCS				Method: E300.0		
Analysis Date: 05/20/09 13:17		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		87	1.0	87.47		99	90	110				
Sulfate		26	1.0	28.53		91	90	110				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: IC101-H_090520A: 16		SampType: Laboratory Fortified Blank				Sample ID: LFB				Method: E300.0		
Analysis Date: 05/20/09 13:33		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		4.5	1.0	5		90	90	110				
Sulfate		9.1	1.0	10		91	90	110				
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: IC101-H_090520A: 17		SampType: Method Blank				Sample ID: MBLK				Method: E300.0		
Analysis Date: 05/20/09 13:49		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		ND	0.05									
Sulfate		ND	0.1									
Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A												
Run ID :Run Order: IC101-H_090520A: 45		SampType: Continuing Calibration Verification Standard				Sample ID: CCV				Method: E300.0		
Analysis Date: 05/20/09 21:29		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		23	1.0	25		93	90	110				
Sulfate		47	1.0	50		95	90	110				
Qualifiers:	ND - Not Detected at the Reporting Limit			S - Spike Recovery outside accepted recovery limits				N - Analyte concentration was not sufficiently high to calculate RPD				
	J - Analyte detected below quantitation limits			R - RPD outside accepted recovery limits				A - Analyte concentration greater than three times the spike amount				



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Client: Asarco LLC
Work Order: H09050213
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

BatchID: R53685

Run ID :Run Order: IC101-H_090520A: 45 SampType: Continuing Calibration Verification Standard Sample ID: CCV Method: E300.0

Analysis Date: 05/20/09 21:29 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A

Run ID :Run Order: IC101-H_090520A: 54 SampType: Sample Matrix Spike Sample ID: H09050213-005A MS Method: E300.0

Analysis Date: 05/20/09 23:57 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 29 1.0 25 4.596 96 90 110

Sulfate 100 1.0 50 49.62 102 90 110

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Run ID :Run Order: IC101-H_090520A: 55 SampType: Sample Matrix Spike Duplicate Sample ID: H09050213-005A MSD Method: E300.0

Analysis Date: 05/21/09 00:14 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 29 1.0 25 4.596 97 90 110 28.63 0.4 20

Sulfate 100 1.0 50 49.62 103 90 110 100.8 0.2 20

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Run ID :Run Order: IC101-H_090520A: 59 SampType: Continuing Calibration Verification Standard Sample ID: CCV Method: E300.0

Analysis Date: 05/21/09 01:19 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 23 1.0 25 93 90 110

Sulfate 47 1.0 50 94 90 110

Associated samples: H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Run ID :Run Order: IC101-H_090520A: 68 SampType: Sample Matrix Spike Sample ID: H09050213-015A MS Method: E300.0

Analysis Date: 05/21/09 03:47 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 24 1.0 25 94 90 110

Sulfate 48 1.0 50 95 90 110

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A; H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits N - Analyte concentration was not sufficiently high to calculate RPD
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-09

Work Order: H09050213

BatchID: R53685

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: IC101-H_090520A: 69		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050213-015A MSD				Method: E300.0		
Analysis Date: 05/21/09 04:03		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		23	1.0	25		93	90	110	23.54	0.7	20	
Sulfate		47	1.0	50		94	90	110	47.55	1.1	20	

Associated samples: H09050213-001A; H09050213-002A; H09050213-003A; H09050213-004A; H09050213-005A; H09050213-006A; H09050213-007A; H09050213-008A;
H09050213-009A; H09050213-010A; H09050213-011A; H09050213-012A; H09050213-013A; H09050213-014A; H09050213-015A

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

A - Analyte concentration greater than three times the spike amount



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ANALYTICAL SUMMARY REPORT

June 08, 2009

Jon Nickel
Asarco LLC
PO Box 1230
East Helena, MT 59635-

Workorder No.: H09050267 Quote ID: H409 - Semi-Annual Residential CAMU Monitoring

Project Name: Annual RI/FS Long Term Monitoring May 2009

Energy Laboratories Inc received the following 7 samples for Asarco LLC on 5/19/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09050267-001	EHR-0509-315	05/19/09 8:20	05/19/09	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09050267-002	EHR-0509-316	05/19/09 8:50	05/19/09	Groundwater	Same As Above
H09050267-003	EHR-0509-317	05/19/09 9:15	05/19/09	Groundwater	Same As Above
H09050267-004	EHR-0509-318	05/19/09 9:40	05/19/09	Groundwater	Same As Above
H09050267-005	EHR-0509-319	05/19/09 10:00	05/19/09	Groundwater	Same As Above
H09050267-006	EHR-0509-320	05/19/09 10:40	05/19/09	Groundwater	Same As Above
H09050267-007	EHR-0509-321	05/19/09 11:05	05/19/09	Groundwater	Same As Above

BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005

eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002

eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006

eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945

eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012

eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS

Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C ($\pm 2^\circ\text{C}$)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Jonathan D. Hager

Report Approved By: _____

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy
Laboratory-Helena, ou=Assistant Lab Manager,
email=jhager@energylab.com, c=US
Date: 2009.06.08 11:27:15 -06'00'

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-315
Lab ID: H09050267-001
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 08:20 **DateReceived:** 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1	A4500-H B		05/20/09 11:24 / kjw		PH2_090520A : 42		090520A-PH-W
Conductivity	740	umhos/cm		1	A2510 B		05/20/09 10:35 / hm		COND_090520A : 2790520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10	A2540 D		05/26/09 11:49 / hm		SOLIDS_090526B : 3	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	528	mg/L		10	A2540 C		05/26/09 10:55 / hm		SOLIDS_090526C : 3	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1	A2320 B		05/28/09 16:03 / hm		TITTR_090528B : 34		090528A-ALK-W
Bicarbonate as HCO3	150	mg/L		1	A2320 B		05/28/09 16:03 / hm		TITTR_090528B : 34		090528A-ALK-W
Chloride	26	mg/L		1	E300.0		05/22/09 05:14 / hm		IC101-H_090520B : 93		R53709
Sulfate	230	mg/L		1	E300.0		05/22/09 05:14 / hm		IC101-H_090520B : 93		R53709
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Aluminum	ND	mg/L		0.1	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Antimony	ND	mg/L		0.003	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Arsenic	0.003	mg/L		0.002	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Barium	ND	mg/L		0.1	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Beryllium	ND	mg/L		0.001	E200.8		05/27/09 16:49 / eli-b		SUB-B130081 : 1		B_R130081
Cadmium	0.001	mg/L		0.001	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Calcium	92	mg/L		1	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Chromium	ND	mg/L		0.001	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Cobalt	ND	mg/L		0.01	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Copper	0.004	mg/L		0.001	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Gold	ND	mg/L		0.01	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Iron	0.19	mg/L		0.02	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Lead	ND	mg/L		0.005	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Magnesium	21	mg/L		1	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Manganese	0.03	mg/L		0.01	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Mercury	ND	mg/L		0.001	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903
Nickel	ND	mg/L		0.01	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Potassium	6	mg/L		1	E200.7		05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Selenium	0.027	mg/L		0.001	E200.8		05/23/09 04:38 / eli-b		SUB-B129903 : 35		B_R129903

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-315
Lab ID: H09050267-001
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 08:20 DateReceived: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Sodium	23	mg/L		1		E200.7	05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/23/09 04:38 / ell-b		SUB-B129903 : 35		B_R129903
Vanadium	ND	mg/L		0.01		E200.7	05/22/09 19:40 / eli-b		SUB-B129915 : 1		B_R129915
Zinc	0.04	mg/L		0.01		E200.8	05/23/09 04:38 / ell-b		SUB-B129903 : 35		B_R129903

Report Definitions: RL - Analyte reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-316
Lab ID: H09050267-002
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 08:50 Date Received: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	05/20/09 11:27 / kjw		PH2_090520A : 43	090520A-PH-W	
Conductivity	457	umhos/cm		1		A2510 B	05/20/09 10:37 / hm		COND_090520A : 2890520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/26/09 11:50 / hm		SOLIDS_090526B : 4	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	296	mg/L		10		A2540 C	05/26/09 10:56 / hm		SOLIDS_090526C : 4	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		1		A2320 B	05/28/09 16:28 / hm		TITTR_090528B : 35	R53840	
Bicarbonate as HCO3	130	mg/L		1		A2320 B	05/28/09 16:28 / hm		TITTR_090528B : 35	R53840	
Chloride	8	mg/L		1		E300.0	05/22/09 05:31 / hm		IC101-H_090520B : 94	R53709	
Sulfate	110	mg/L		1		E300.0	05/22/09 05:31 / hm		IC101-H_090520B : 94	R53709	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Aluminum	ND	mg/L		0.1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Antimony	ND	mg/L		0.003		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Arsenic	0.031	mg/L		0.002		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Barium	ND	mg/L		0.1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Beryllium	ND	mg/L		0.001		E200.8	05/27/09 16:53 / eli-b		SUB-B130081 : 2	B_R130081	
Cadmium	0.001	mg/L		0.001		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Calcium	40	mg/L		1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Chromium	ND	mg/L		0.001		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Cobalt	ND	mg/L		0.01		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Copper	0.013	mg/L		0.001		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Gold	ND	mg/L		0.01		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Iron	ND	mg/L		0.02		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Lead	ND	mg/L		0.005		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Magnesium	9	mg/L		1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Manganese	ND	mg/L		0.01		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Mercury	ND	mg/L		0.001		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	
Nickel	ND	mg/L		0.01		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Potassium	8	mg/L		1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2	B_R129915	
Selenium	0.011	mg/L		0.001		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2	B_R129992	

Report RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-316
Lab ID: H09050267-002
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 08:50 Date Received: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2		B_R129915
Sodium	32	mg/L		1		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/27/09 01:10 / eli-b		SUB-B129992 : 2		B_R129992
Vanadium	ND	mg/L		0.01		E200.7	05/22/09 19:44 / eli-b		SUB-B129915 : 2		B_R129915
Zinc	0.01	mg/L		0.01		E200.8	05/27/09 16:53 / eli-b		SUB-B130081 : 2		B_R130081

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-317
Lab ID: H09050267-003
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 09:15 **Date Received:** 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	05/20/09 11:28 / kjw		PH2_090520A : 44		090520A-PH-W
Conductivity	471	umhos/cm		1		A2510 B	05/20/09 10:39 / hm		COND_090520A : 2990520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/26/09 11:50 / hm		SOLIDS_090526B : 5	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	267	mg/L		10		A2540 C	05/26/09 10:56 / hm		SOLIDS_090526C : 5	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	99	mg/L		1		A2320 B	05/28/09 16:33 / hm		TITTR_090528B : 38		090528A-ALK-W
Bicarbonate as HCO3	120	mg/L		1		A2320 B	05/28/09 16:33 / hm		TITTR_090528B : 38		090528A-ALK-W
Chloride	7	mg/L		1		E300.0	05/22/09 05:47 / hm		IC101-H_090520B : 95		R53709
Sulfate	96	mg/L		1		E300.0	05/22/09 05:47 / hm		IC101-H_090520B : 95		R53709
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Aluminum	ND	mg/L		0.1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Antimony	ND	mg/L		0.003		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Arsenic	ND	mg/L		0.002		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Barium	ND	mg/L		0.1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Beryllium	ND	mg/L		0.001		E200.8	05/27/09 16:57 / eli-b		SUB-B130081 : 3		B_R130081
Cadmium	0.001	mg/L		0.001		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Calcium	41	mg/L		1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Chromium	ND	mg/L		0.001		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Cobalt	ND	mg/L		0.01		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Copper	0.002	mg/L		0.001		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Gold	ND	mg/L		0.01		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Iron	0.04	mg/L		0.02		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Lead	ND	mg/L		0.005		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Magnesium	9	mg/L		1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Manganese	ND	mg/L		0.01		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Mercury	ND	mg/L		0.001		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Nickel	ND	mg/L		0.01		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Potassium	4	mg/L		1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Selenium	0.006	mg/L		0.001		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992

Report Definitions: RL - Analyte reporting limit.
Definitions: MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-317
Lab ID: H09050267-003
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 09:15 DateReceived: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Sodium	27	mg/L		1		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/27/09 01:14 / eli-b		SUB-B129992 : 3		B_R129992
Vanadium	ND	mg/L		0.01		E200.7	05/22/09 19:48 / eli-b		SUB-B129915 : 3		B_R129915
Zinc	0.01	mg/L		0.01		E200.8	05/27/09 16:57 / eli-b		SUB-B130081 : 3		B_R130081

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-318
Lab ID: H09050267-004
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 09:40 **Date Received:** 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	05/20/09 11:29 / kjw		PH2_090520A : 45		090520A-PH-W
Conductivity	682	umhos/cm		1		A2510 B	05/20/09 10:41 / hm		COND_090520A : 3090520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/26/09 11:51 / hm		SOLIDS_090526B : 6	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	471	mg/L		10		A2540 C	05/26/09 10:56 / hm		SOLIDS_090526C : 6	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		1		A2320 B	05/28/09 16:46 / hm		TITTR_090528B : 40		090528A-ALK-W
Bicarbonate as HCO3	220	mg/L		1		A2320 B	05/28/09 16:46 / hm		TITTR_090528B : 40		090528A-ALK-W
Chloride	28	mg/L		1		E300.0	05/22/09 06:04 / hm		IC101-H_090520B : 96		R53709
Sulfate	110	mg/L		1		E300.0	05/22/09 06:04 / hm		IC101-H_090520B : 96		R53709
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Aluminum	ND	mg/L		0.1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Antimony	ND	mg/L		0.003		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Arsenic	0.013	mg/L		0.002		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Barium	ND	mg/L		0.1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Beryllium	ND	mg/L		0.001		E200.8	05/27/09 17:01 / eli-b		SUB-B130081 : 4		B_R130081
Cadmium	ND	mg/L		0.001		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Calcium	68	mg/L		1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Chromium	ND	mg/L		0.001		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Cobalt	ND	mg/L		0.01		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Copper	0.003	mg/L		0.001		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Gold	ND	mg/L		0.01		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Iron	ND	mg/L		0.02		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Lead	ND	mg/L		0.005		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Magnesium	18	mg/L		1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Manganese	ND	mg/L		0.01		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Mercury	ND	mg/L		0.001		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Nickel	ND	mg/L		0.01		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Potassium	14	mg/L		1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Selenium	0.001	mg/L		0.001		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992

Report Definitions: RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-318
Lab ID: H09050267-004
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 09:40 Date Received: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Sodium	36	mg/L		1		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Vanadium	0.01	mg/L		0.01		E200.8	05/27/09 01:46 / eli-b		SUB-B129992 : 4		B_R129992
Zinc	ND	mg/L		0.01		E200.7	05/22/09 19:52 / eli-b		SUB-B129915 : 4		B_R129915

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-319
Lab ID: H09050267-005
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 10:00 **DateReceived:** 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	05/20/09 11:34 / kjw		PH2_090520A : 47		090520A-PH-W
Conductivity	681	umhos/cm		1		A2510 B	05/20/09 10:48 / hm		COND_090520A : 3290520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/26/09 11:51 / hm		SOLIDS_090526B : 7	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	472	mg/L		10		A2540 C	05/26/09 10:57 / hm		SOLIDS_090526C : 7	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		1		A2320 B	05/28/09 16:56 / hm		TITTR_090528B : 41		090528A-ALK-W
Bicarbonate as HCO3	220	mg/L		1		A2320 B	05/28/09 16:56 / hm		TITTR_090528B : 41		090528A-ALK-W
Chloride	28	mg/L		1		E300.0	05/22/09 06:53 / hm		IC101-H_090520B : 99		R53709
Sulfate	110	mg/L		1		E300.0	05/22/09 06:53 / hm		IC101-H_090520B : 99		R53709
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Aluminum	ND	mg/L		0.1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Antimony	ND	mg/L		0.003		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Arsenic	0.013	mg/L		0.002		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Barium	ND	mg/L		0.1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Beryllium	ND	mg/L		0.001		E200.8	05/27/09 17:34 / eli-b		SUB-B130081 : 5		B_R130081
Cadmium	ND	mg/L		0.001		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Calcium	69	mg/L		1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Chromium	0.001	mg/L		0.001		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Cobalt	ND	mg/L		0.01		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Copper	0.004	mg/L		0.001		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Gold	ND	mg/L		0.01		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Iron	ND	mg/L		0.02		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Lead	ND	mg/L		0.005		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Magnesium	19	mg/L		1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Manganese	ND	mg/L		0.01		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Mercury	ND	mg/L		0.001		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992
Nickel	ND	mg/L		0.01		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Potassium	14	mg/L		1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Selenium	0.002	mg/L		0.001		E200.8	05/27/09 01:50 / eli-b		SUB-B129992 : 5		B_R129992

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-319
Lab ID: H09050267-005
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 10:00 Date Received: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Sodium	36	mg/L		1		E200.7	05/22/09 20:04 / eli-b		SUB-B129915 : 5		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/27/09 01:50 / ell-b		SUB-B129992 : 5		B_R129992
Vanadium	0.01	mg/L		0.01		E200.8	05/27/09 01:50 / ell-b		SUB-B129992 : 5		B_R129992
Zinc	ND	mg/L		0.01		E200.7	05/22/09 20:04 / ell-b		SUB-B129915 : 5		B_R129915

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-320
Lab ID: H09050267-006
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 10:40 Date Received: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/20/09 11:36 / k/jw		PH2_090520A : 48		090520A-PH-W
Conductivity	338	umhos/cm		1		A2510 B	05/20/09 10:53 / hm		COND_090520A : 3390520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	94	mg/L		10		A2540 D	05/26/09 11:52 / hm		SOLIDS_090526B : 8	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	253	mg/L		10		A2540 C	05/26/09 10:58 / hm		SOLIDS_090526C : 8	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		1		A2320 B	05/28/09 17:06 / hm		TITTR_090528B : 42		090528A-ALK-W
Bicarbonate as HCO3	140	mg/L		1		A2320 B	05/28/09 17:06 / hm		TITTR_090528B : 42		090528A-ALK-W
Chloride	5	mg/L		1		E300.0	05/22/09 07:09 / hm		IC101-H_090520B : 100		R53709
Sulfate	45	mg/L		1		E300.0	05/22/09 07:09 / hm		IC101-H_090520B : 100		R53709
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Aluminum	ND	mg/L		0.1		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Antimony	ND	mg/L		0.003		E200.8	05/27/09 01:55 / eli-b		SUB-B129992 : 6		B_R129992
Arsenic	ND	mg/L		0.002		E200.8	05/27/09 01:55 / eli-b		SUB-B129992 : 6		B_R129992
Barium	ND	mg/L		0.1		E200.7	05/22/09 20:08 / ell-b		SUB-B129915 : 6		B_R129915
Beryllium	ND	mg/L		0.001		E200.8	05/27/09 17:38 / eli-b		SUB-B130081 : 6		B_R130081
Cadmium	ND	mg/L		0.001		E200.8	05/27/09 01:55 / eli-b		SUB-B129992 : 6		B_R129992
Calcium	38	mg/L		1		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Chromium	ND	mg/L		0.001		E200.8	05/27/09 01:55 / ell-b		SUB-B129992 : 6		B_R129992
Cobalt	ND	mg/L		0.01		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Copper	0.001	mg/L		0.001		E200.8	05/27/09 01:55 / ell-b		SUB-B129992 : 6		B_R129992
Gold	ND	mg/L		0.01		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Iron	ND	mg/L		0.02		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Lead	ND	mg/L		0.005		E200.8	05/27/09 01:55 / ell-b		SUB-B129992 : 6		B_R129992
Magnesium	9	mg/L		1		E200.7	05/22/09 20:08 / ell-b		SUB-B129915 : 6		B_R129915
Manganese	ND	mg/L		0.01		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Mercury	ND	mg/L		0.001		E200.8	05/27/09 01:55 / ell-b		SUB-B129992 : 6		B_R129992
Nickel	ND	mg/L		0.01		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Potassium	4	mg/L		1		E200.7	05/22/09 20:08 / ell-b		SUB-B129915 : 6		B_R129915
Selenium	ND	mg/L		0.001		E200.8	05/27/09 01:55 / ell-b		SUB-B129992 : 6		B_R129992

Report RL - Analyte reporting limit.
Definitions:

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-320
Lab ID: H09050267-006
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 10:40 DateReceived: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Sodium	15	mg/L		1		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/27/09 01:55 / eli-b		SUB-B129992 : 6		B_R129992
Vanadium	ND	mg/L		0.01		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915
Zinc	ND	mg/L		0.01		E200.7	05/22/09 20:08 / eli-b		SUB-B129915 : 6		B_R129915

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-321
Lab ID: H09050267-007
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 11:05 **DateReceived:** 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u.		0.1		A4500-H B	05/20/09 11:43 / k/jw		PH2_090520A : 49	090520A-PH-W	
Conductivity	2	umhos/cm		1		A2510 B	05/20/09 10:55 / hm		COND_090520A : 3490520A-COND-PROB		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/26/09 11:53 / hm		SOLIDs_090526B : 9	090526A-SLDS-TSS-	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/26/09 10:59 / hm		SOLIDs_090526C : 9	090526A-SLDS-TDS-	
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	05/28/09 17:11 / hm		TITTR_090528B : 43	090528A-ALK-W	
Bicarbonate as HCO3	2	mg/L		1		A2320 B	05/28/09 17:11 / hm		TITTR_090528B : 43	090528A-ALK-W	
Chloride	ND	mg/L		1		E300.0	05/22/09 07:26 / hm		IC101-H_090520B : 101	R53709	
Sulfate	ND	mg/L		1		E300.0	05/22/09 07:26 / hm		IC101-H_090520B : 101	R53709	
METALS, DISSOLVED											
Tellurium	ND	mg/L		0.1		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Aluminum	ND	mg/L		0.1		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Antimony	ND	mg/L		0.003		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	
Arsenic	ND	mg/L		0.002		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	
Barium	ND	mg/L		0.1		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Beryllium	ND	mg/L		0.001		E200.8	05/27/09 17:42 / eli-b		SUB-B130081 : 7	B_R130081	
Cadmium	ND	mg/L		0.001		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	
Calcium	ND	mg/L		1		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Chromium	ND	mg/L		0.001		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	
Cobalt	ND	mg/L		0.01		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Copper	ND	mg/L		0.001		E200.8	05/27/09 17:42 / eli-b		SUB-B130081 : 7	B_R130081	
Gold	ND	mg/L		0.01		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Iron	ND	mg/L		0.02		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Lead	ND	mg/L		0.005		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	
Magnesium	ND	mg/L		1		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Manganese	ND	mg/L		0.01		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Mercury	ND	mg/L		0.001		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	
Nickel	ND	mg/L		0.01		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Potassium	ND	mg/L		1		E200.7	05/22/09 20:21 / eli-b		SUB-B129915 : 7	B_R129915	
Selenium	ND	mg/L		0.001		E200.8	05/27/09 01:59 / eli-b		SUB-B129992 : 7	B_R129992	

Report Definitions: RL - Analyte reporting limit.
Definitions: MCL - Maximum contaminant level.
Definitions: ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-0509-321
Lab ID: H09050267-007
Matrix: Groundwater

Project: Annual RI/FS Long Term Monitoring May 2009
Collection Date: 05/19/09 11:05 Date Received: 05/19/09
Report Date: 06/08/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Silver	ND	mg/L		0.005		E200.7	05/22/09 20:21 / ell-b		SUB-B129915 : 7		B_R129915
Sodium	ND	mg/L		1		E200.7	05/22/09 20:21 / ell-b		SUB-B129915 : 7		B_R129915
Thallium	ND	mg/L		0.001		E200.8	05/27/09 01:59 / ell-b		SUB-B129992 : 7		B_R129992
Vanadium	ND	mg/L		0.01		E200.7	05/22/09 20:21 / ell-b		SUB-B129915 : 7		B_R129915
Zinc	ND	mg/L		0.01		E200.7	05/22/09 20:21 / ell-b		SUB-B129915 : 7		B_R129915

Report Definitions: RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: 090520A-COND-PROBE

Run ID :Run Order: COND_090520A: 1	SampType: Laboratory Control Sample				Sample ID: LCS1_090520A				Method: A2510 B		
Analysis Date: 05/20/09 09:03	Units: umhos/cm				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		99	90	110				

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: COND_090520A: 24	SampType: Continuing Calibration Verification Standard				Sample ID: CCV2_090520A				Method: A2510 B		
Analysis Date: 05/20/09 10:29	Units: umhos/cm				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	720	1.0	718		100	90	110				

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: COND_090520A: 31	SampType: Sample Duplicate				Sample ID: H09050267-004ADUP				Method: A2510 B		
Analysis Date: 05/20/09 10:45	Units: umhos/cm				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	680	1.0						682.1	0.3	10	

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: COND_090520A: 35	SampType: Continuing Calibration Verification Standard				Sample ID: CCV3_090520A				Method: A2510 B		
Analysis Date: 05/20/09 10:57	Units: umhos/cm				Prep Info: Prep Date:				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	720	1.0	718		100	90	110				

Associated samples:

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	N - Analyte concentration was not sufficiently high to calculate RPD
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: 090520A-PH-W

Run ID :Run Order: PH2_090520A: 1		SampType: Laboratory Control Sample				Sample ID: LCS1_090520A				Method: A4500-H B		
Analysis Date: 05/20/09 10:24		Units: s.u.		Prep Info: Prep Date:				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
pH	7.03	0.10	7		100	99	101					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: PH2_090520A: 40		SampType: Continuing Calibration Verification Standard				Sample ID: CCV6_090520A				Method: A4500-H B		
Analysis Date: 05/20/09 11:10		Units: s.u.		Prep Info: Prep Date:				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
pH	10.1	0.10	10		101	99	101					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: PH2_090520A: 46		SampType: Sample Duplicate				Sample ID: H09050267-004ADUP				Method: A4500-H B		
Analysis Date: 05/20/09 11:32		Units: s.u.		Prep Info: Prep Date:				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
pH	7.89	0.10						7.94	0.6	2		

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: PH2_090520A: 50		SampType: Continuing Calibration Verification Standard				Sample ID: CCV7_090520A				Method: A4500-H B		
Analysis Date: 05/20/09 11:46		Units: s.u.		Prep Info: Prep Date:				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
pH	10.0	0.10	10		100	99	101					

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: 090526A-SLDS-TDS-W

Run ID :Run Order: SOLIDS_090526C: 1		SampType: Method Blank				Sample ID: MBLK1_090526A				Method: A2540 C		
Analysis Date: 05/26/09 10:54		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Dissolved TDS @ 180 C	ND	1.0										

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526C: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090526A				Method: A2540 C		
Analysis Date: 05/26/09 10:55		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Dissolved TDS @ 180 C	983	10	1000		98	90	110					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526C: 10		SampType: Sample Matrix Spike				Sample ID: H09050267-007AMS				Method: A2540 C		
Analysis Date: 05/26/09 10:59		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Dissolved TDS @ 180 C	1970	10	2000		99	80	120					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526C: 11		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050267-007AMSD				Method: A2540 C		
Analysis Date: 05/26/09 11:00		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Dissolved TDS @ 180 C	1950	10	2000		98	80	120	1974	1	10		

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526C: 22		SampType: Sample Duplicate				Sample ID: H09050287-010ADUP				Method: A2540 C		
Analysis Date: 05/26/09 11:05		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Dissolved TDS @ 180 C	1200	10						1198	0.2	20		

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Qualifiers: ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	N - Analyte concentration was not sufficiently high to calculate RPD
J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: 090526A-SLDS-TSS-W

Run ID :Run Order: SOLIDS_090526B: 1		SampType: Method Blank				Sample ID: MBLK1_090526A				Method: A2540 D		
Analysis Date: 05/26/09 11:47		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1										

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526B: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090526A				Method: A2540 D		
Analysis Date: 05/26/09 11:47		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1880	10	2000			94	70	130				

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526B: 10		SampType: Sample Duplicate				Sample ID: H09050267-007ADUP				Method: A2540 D		
Analysis Date: 05/26/09 11:53		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2.00	10							2			10

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: SOLIDS_090526B: 21		SampType: Sample Duplicate				Sample ID: H09050287-010ADUP				Method: A2540 D		
Analysis Date: 05/26/09 11:59		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	90.0	10							90		0	10

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Qualifiers:	ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits	S - Spike Recovery outside accepted recovery limits R - RPD outside accepted recovery limits	N - Analyte concentration was not sufficiently high to calculate RPD A - Analyte concentration greater than three times the spike amount
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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: 090528A-ALK-W

Run ID :Run Order: TITTR_090528B: 1		SampType: Method Blank				Sample ID: MBLK1_090528A				Method: A2320 B		
Analysis Date: 05/28/09 09:36		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		2	1									

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 2		SampType: Laboratory Control Sample				Sample ID: LCS1_090528A				Method: A2320 B		
Analysis Date: 05/28/09 09:17		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		580	4.0	600	1.996	96	90	110				

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 26		SampType: Sample Matrix Spike				Sample ID: H09050256-010AMS				Method: A2320 B		
Analysis Date: 05/28/09 13:23		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		580	4.0	600	1.996	96	90	110				

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 27		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050256-010AMSD				Method: A2320 B		
Analysis Date: 05/28/09 13:31		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		580	4.0	600	1.996	96	90	110	576.8	0.3	20	

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 30		SampType: Continuing Calibration Verification Standard				Sample ID: CCV2_090528A				Method: A2320 B		
Analysis Date: 05/28/09 15:16		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		1100	4.0	1000		106	90	110				

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: 090528A-ALK-W

Run ID :Run Order: TITTR_090528B: 36		SampType: Sample Matrix Spike				Sample ID: H09050267-002AMS				Method: A2320 B		
Analysis Date: 05/28/09 16:16		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	660	4.0	600	103.8	93	90	110					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 37		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050267-002AMSD				Method: A2320 B		
Analysis Date: 05/28/09 16:22		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	660	4.0	600	103.8	93	90	110	661.7	0.5	20		

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 39		SampType: Sample Duplicate				Sample ID: H09050267-003ADUP				Method: A2320 B		
Analysis Date: 05/28/09 16:37		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	96	4.0						98.8	3.1	20		
Bicarbonate as HCO3	120	4.0						120.5	3.1	20		

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: TITTR_090528B: 45		SampType: Continuing Calibration Verification Standard				Sample ID: CCV3_090528A				Method: A2320 B		
Analysis Date: 05/28/09 17:30		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	1000	4.0	1000		105	90	110					

Associated samples:

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	N - Analyte concentration was not sufficiently high to calculate RPD
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R129903

Run ID :Run Order: SUB-B129903: 2		SampType: Method Blank			Sample ID: LRB				Method: E200.8			
Analysis Date: 05/22/09 12:47		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		ND		1E-05								
Arsenic		ND		4E-05								
Cadmium		0.0001		9E-06								
Chromium		ND		4E-05								
Copper		ND		7E-05								
Lead		1E-05		8E-06								
Mercury		ND		1E-05								
Selenium		ND		0.0001								
Thallium		ND		7E-06								
Zinc		0.001		3E-05								

Associated samples: H09050267-001B

Run ID :Run Order: SUB-B129903: 3		SampType: Laboratory Fortified Blank			Sample ID: LFB				Method: E200.8			
Analysis Date: 05/22/09 12:51		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.052	0.050	0.05		104	85	115				
Arsenic		0.052	0.0050	0.05		103	85	115				
Cadmium		0.052	0.0010	0.05	0.0001	103	85	115				
Chromium		0.052	0.010	0.05		103	85	115				
Copper		0.053	0.010	0.05		105	85	115				
Lead		0.052	0.010	0.05	0.00001	104	85	115				
Mercury		0.0010	0.0010	0.001		104	85	115				
Selenium		0.051	0.0050	0.05		102	85	115				
Thallium		0.052	0.10	0.05		104	85	115				
Zinc		0.053	0.010	0.05	0.0012	103	85	115				

Associated samples: H09050267-001B

Run ID :Run Order: SUB-B129903: 4		SampType: Initial Calibration Verification Standard			Sample ID: QCS - 081021A,090401E, ME080814C				Method: E200.8			
Analysis Date: 05/22/09 16:55		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.049	0.050	0.05		98	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R129903

Run ID :Run Order: SUB-B129903: 4 SampType: Initial Calibration Verification Standard Sample ID: QCS - 081021A,090401E, ME080814C Method: E200.8

Analysis Date: 05/22/09 16:55		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.050	0.0050	0.05		101	90	110				
Cadmium		0.025	0.0010	0.025		99	90	110				
Chromium		0.051	0.010	0.05		103	90	110				
Copper		0.050	0.010	0.05		100	90	110				
Lead		0.050	0.010	0.05		100	90	110				
Mercury		0.0020	0.0010	0.002		100	90	110				
Selenium		0.052	0.0050	0.05		103	90	110				
Thallium		0.051	0.10	0.05		102	90	110				
Zinc		0.051	0.010	0.05		103	90	110				

Associated samples: H09050267-001B

Run ID :Run Order: SUB-B129903: 25 SampType: Initial Calibration Verification Standard Sample ID: QCS - 081021A,090401E, ME080814C Method: E200.8

Analysis Date: 05/22/09 23:04		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.048	0.050	0.05		97	90	110				
Arsenic		0.050	0.0050	0.05		100	90	110				
Cadmium		0.025	0.0010	0.025		100	90	110				
Chromium		0.049	0.010	0.05		99	90	110				
Copper		0.049	0.010	0.05		98	90	110				
Lead		0.050	0.010	0.05		99	90	110				
Mercury		0.0019	0.0010	0.002		97	90	110				
Selenium		0.051	0.0050	0.05		102	90	110				
Thallium		0.050	0.10	0.05		99	90	110				
Zinc		0.050	0.010	0.05		101	90	110				

Associated samples: H09050267-001B

Run ID :Run Order: SUB-B129903: 32 SampType: Initial Calibration Verification Standard Sample ID: QCS - 081021A,090401E, ME080814C Method: E200.8

Analysis Date: 05/22/09 12:06		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.048	0.050	0.05		97	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

Work Order: H09050267

BatchID: B_R129903

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: SUB-B129903: 32

SampType: Initial Calibration Verification Standard

Sample ID: QCS - 081021A,090401E,
080814C

Method: E200.8

Analysis Date: 05/22/09 12:06

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes <u>10</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		100	90	110				
Cadmium	0.025	0.0010	0.025		99	90	110				
Chromium	0.049	0.010	0.05		98	90	110				
Copper	0.050	0.010	0.05		99	90	110				
Lead	0.050	0.010	0.05		100	90	110				
Mercury	0.0020	0.0010	0.002		98	90	110				
Selenium	0.051	0.0050	0.05		101	90	110				
Thallium	0.050	0.10	0.05		101	90	110				
Zinc	0.051	0.010	0.05		101	90	110				

Associated samples: H09050267-001B

Run ID :Run Order: SUB-B129903: 36

SampType: Sample Matrix Spike

Sample ID: H09050267-001B

Method: E200.8

Analysis Date: 05/23/09 04:42

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes <u>10</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.242	0.0050	0.25		97	70	130				
Arsenic	0.257	0.0050	0.25	0.00305	102	70	130				
Cadmium	0.248	0.0010	0.25	0.0011	99	70	130				
Chromium	0.247	0.010	0.25	0.0007	98	70	130				
Copper	0.257	0.010	0.25	0.0045	101	70	130				
Lead	0.245	0.010	0.25	0.00025	98	70	130				
Mercury	0.00485	0.0010	0.005		97	70	130				
Selenium	0.276	0.0050	0.25	0.0271	99	70	130				
Thallium	0.241	0.0050	0.25		96	70	130				
Zinc	0.280	0.010	0.25	0.0383	97	70	130				

Associated samples: H09050267-001B

Run ID :Run Order: SUB-B129903: 37

SampType: Sample Matrix Spike Duplicate

Sample ID: H09050267-001B

Method: E200.8

Analysis Date: 05/23/09 05:03

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes <u>10</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.249	0.0050	0.25		99	70	130	0.242	2.7	20	
Arsenic	0.264	0.0050	0.25	0.00305	104	70	130	0.2573	2.6	20	

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

Work Order: H09050267

Project: Annual RI/FS Long Term Monitoring May 20

BatchID: B_R129903

Run ID :Run Order: SUB-B129903: 37

SampType: Sample Matrix Spike Duplicate

Sample ID: H09050267-001B

Method: E200.8

Analysis Date: 05/23/09 05:03

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 10

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Cadmium	0.252	0.0010	0.25	0.0011	100	70	130	0.2477	1.6	20
Chromium	0.250	0.010	0.25	0.0007	100	70	130	0.2467	1.4	20
Copper	0.262	0.010	0.25	0.0045	103	70	130	0.257	1.9	20
Lead	0.251	0.010	0.25	0.00025	100	70	130	0.2445	2.8	20
Mercury	0.00483	0.0010	0.005		97	70	130	0.00485	0.5	20
Selenium	0.284	0.0050	0.25	0.0271	103	70	130	0.2755	2.9	20
Thallium	0.249	0.0050	0.25		100	70	130	0.241	3.4	20
Zinc	0.288	0.010	0.25	0.0383	100	70	130	0.2801	2.6	20

Associated samples: H09050267-001B

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R129915

Run ID :Run Order: SUB-B129915: 8		SampType: Continuing Calibration Verification Standard Sample ID: ICV						Method: E200.7				
Analysis Date: 05/22/09 11:26		Units: mg/L			Prep Info:		Prep Date:		Prep Method:			
Analytes	15	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium		2.54	0.10	2.5		102	95	105				
Aluminum		2.49	0.10	2.5		99	95	105				
Barium		2.48	0.10	2.5		99	95	105				
Calcium		25.0	1.0	25		100	95	105				
Cobalt		2.47	0.020	2.5		99	95	105				
Gold		2.49	0.0043	2.5		100	95	105				
Iron		2.55	0.030	2.5		102	95	105				
Magnesium		24.9	1.0	25		99	95	105				
Manganese		2.45	0.010	2.5		98	95	105				
Nickel		2.55	0.050	2.5		102	95	105				
Potassium		24.6	1.0	25		99	95	105				
Silver		0.495	0.010	0.5		99	95	105				
Sodium		24.3	1.0	25		97	95	105				
Vanadium		2.46	0.10	2.5		99	95	105				
Zinc		2.51	0.010	2.5		101	95	105				

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129915: 9		SampType: Method Blank				Sample ID: MB-SPDIS090522A			Method: E200.7			
Analysis Date: 05/22/09 11:34		Units: mg/L			Prep Info:		Prep Date:		Prep Method:			
Analytes	15	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium		ND	0.02									
Aluminum		ND	0.008									
Barium		0.0003	0.0001									
Calcium		ND	0.009									
Cobalt		ND	0.001									
Gold		ND	0.004									
Iron		ND	0.002									
Magnesium		ND	0.01									
Manganese		0.0005	0.0003									
Nickel		ND	0.002									
Potassium		ND	0.01									
Silver		ND	0.002									
Sodium		ND	0.03									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R129915

Run ID :Run Order: SUB-B129915: 9	SampType: Method Blank				Sample ID: MB-SPDIS090522A				Method: E200.7		
Analysis Date: 05/22/09 11:34	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 15	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	ND	0.003									
Zinc	ND	0.002									

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129915: 10	SampType: Laboratory Fortified Blank				Sample ID: LFB-SPDIS090522A				Method: E200.7		
Analysis Date: 05/22/09 11:38	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 15	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	1.00	0.10	1		100	85	115				
Aluminum	4.82	0.10	5		96	85	115				
Barium	0.995	0.10	1	0.00026	99	85	115				
Calcium	49.4	1.0	50		99	85	115				
Cobalt	0.985	0.020	1		98	85	115				
Gold	0.991	0.0045	1		99	85	115				
Iron	5.03	0.030	5		101	85	115				
Magnesium	49.3	1.0	50		99	85	115				
Manganese	4.89	0.010	5	0.00053	98	85	115				
Nickel	1.02	0.050	1		102	85	115				
Potassium	47.7	1.0	50		95	85	115				
Silver	0.444	0.010	0.5		89	85	115				
Sodium	48.2	1.0	50		96	85	115				
Vanadium	0.975	0.10	1		98	85	115				
Zinc	1.01	0.010	1		101	85	115				

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129915: 11	SampType: Sample Matrix Spike				Sample ID: H09050267-004B				Method: E200.7		
Analysis Date: 05/22/09 19:56	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 15	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	1.01	0.018	1		101	70	130				
Aluminum	4.91	0.10	5		98	70	130				
Barium	1.03	0.10	1	0.03915	99	70	130				
Calcium	114	1.0	50	68.2	92	70	130				
Cobalt	0.973	0.010	1		97	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits N - Analyte concentration was not sufficiently high to calculate RPD
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

Work Order: H09050267

BatchID: B_R129915

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: SUB-B129915: 11

SampType: Sample Matrix Spike

Sample ID: H09050267-004B

Method: E200.7

Analysis Date: 05/22/09 19:56

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 15

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Gold	0.933	0.010	1		93	70	130				
Iron	5.02	0.030	5		100	70	130				
Magnesium	67.5	1.0	50	18.48	98	70	130				
Manganese	4.77	0.010	5		95	70	130				
Nickel	1.03	0.010	1		103	70	130				
Potassium	62.7	1.0	50	13.65	98	70	130				
Silver	0.0816	0.0050	0.5		16	70	130				S
Sodium	85.1	1.0	50	36.2	98	70	130				
Vanadium	0.969	0.10	1	0.01106	96	70	130				
Zinc	1.01	0.010	1		101	70	130				

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129915: 12

SampType: Sample Matrix Spike Duplicate

Sample ID: H09050267-004B

Method: E200.7

Analysis Date: 05/22/09 20:00

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 15

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Tellurium	0.995	0.018	1		99	70	130	1.012	1.7	20	
Aluminum	4.74	0.10	5		95	70	130	4.909	3.5	20	
Barium	0.985	0.10	1	0.03915	95	70	130	1.028	4.3	20	
Calcium	113	1.0	50	68.2	89	70	130	114	1	20	
Cobalt	0.933	0.010	1		93	70	130	0.9734	4.2	20	
Gold	0.916	0.010	1		92	70	130	0.9332	1.9	20	
Iron	4.82	0.030	5		96	70	130	5.019	4	20	
Magnesium	66.6	1.0	50	18.48	96	70	130	67.47	1.2	20	
Manganese	4.64	0.010	5		93	70	130	4.769	2.7	20	
Nickel	0.988	0.010	1		99	70	130	1.033	4.5	20	
Potassium	61.5	1.0	50	13.65	96	70	130	62.73	2	20	
Silver	0.0686	0.0050	0.5		14	70	130	0.08158	17	20	S
Sodium	83.6	1.0	50	36.2	95	70	130	85.08	1.7	20	
Vanadium	0.938	0.10	1	0.01106	93	70	130	0.9692	3.2	20	
Zinc	0.966	0.010	1		97	70	130	1.01	4.5	20	

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R129992

Run ID :Run Order: SUB-B129992: 8		SampType: Method Blank			Sample ID: LRB			Method: E200.8				
Analysis Date: 05/26/09 13:38		Units: mg/L			Prep Info: Prep Date:			Prep Method:				
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	1E-05									
Arsenic		ND	0.00010									
Cadmium		ND	1E-05									
Chromium		ND	0.0001									
Copper		ND	0.0002									
Lead		ND	1E-05									
Mercury		ND	1.0E-05									
Selenium		ND	0.0002									
Thallium		ND	6E-05									
Vanadium		ND	6E-05									

Associated samples: H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129992: 9		SampType: Laboratory Fortified Blank			Sample ID: LFB			Method: E200.8				
Analysis Date: 05/26/09 13:42		Units: mg/L			Prep Info: Prep Date:			Prep Method:				
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.050	0.050	0.05		101	85	115				
Arsenic		0.049	0.0050	0.05		98	85	115				
Cadmium		0.049	0.0010	0.05		97	85	115				
Chromium		0.050	0.010	0.05		100	85	115				
Copper		0.049	0.010	0.05		99	85	115				
Lead		0.050	0.010	0.05		100	85	115				
Mercury		0.00090	0.0010	0.001		90	85	115				
Selenium		0.049	0.0050	0.05		97	85	115				
Thallium		0.050	0.10	0.05		99	85	115				
Vanadium		0.051	0.10	0.05		101	85	115				

Associated samples: H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129992: 10		SampType: Initial Calibration Verification Standard			Sample ID: QCS - 081021A,090401E, ME080814C			Method: E200.8				
Analysis Date: 05/26/09 19:47		Units: mg/L			Prep Info: Prep Date:			Prep Method:				
Analytes	10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.048	0.050	0.05		97	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

Work Order: H09050267

BatchID: B_R129992

Project: Annual RI/FS Long Term Monitoring May 20

Run ID :Run Order: SUB-B129992: 10

SampType: Initial Calibration Verification Standard

Sample ID: QCS - 081021A,090401E,
ME080814C

Method: E200.8

Analysis Date: 05/26/09 19:47

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 10

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Arsenic

0.049

0.0050

0.05

99

90

110

Cadmium

0.024

0.0010

0.025

97

90

110

Chromium

0.048

0.010

0.05

97

90

110

Copper

0.049

0.010

0.05

99

90

110

Lead

0.049

0.010

0.05

99

90

110

Mercury

0.0020

0.0010

0.002

98

90

110

Selenium

0.050

0.0050

0.05

100

90

110

Thallium

0.050

0.10

0.05

99

90

110

Vanadium

0.050

0.10

0.05

100

90

110

Associated samples: H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129992: 13

SampType: Sample Matrix Spike

Sample ID: H09050267-003B

Method: E200.8

Analysis Date: 05/27/09 01:18

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 10

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Antimony

0.244

0.0050

0.25

0.0001

97

70

130

Arsenic

0.245

0.0050

0.25

98

70

130

Cadmium

0.244

0.0010

0.25

0.001

97

70

130

Chromium

0.234

0.010

0.25

0.0008

93

70

130

Copper

0.244

0.010

0.25

0.002

97

70

130

Lead

0.241

0.010

0.25

0.0004

96

70

130

Mercury

0.00480

0.0010

0.005

96

70

130

Selenium

0.246

0.0050

0.25

0.00585

96

70

130

Thallium

0.238

0.0050

0.25

95

70

130

Vanadium

0.242

0.10

0.25

0.0012

96

70

130

Associated samples: H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B129992: 14

SampType: Sample Matrix Spike Duplicate

Sample ID: H09050267-003B

Method: E200.8

Analysis Date: 05/27/09 01:22

Units: mg/L

Prep Info:

Prep Date:

Prep Method:

Analytes 10

Result

PQL

SPK value

SPK Ref Val

%REC

LowLimit

HighLimit

RPD Ref Val

%RPD

RPDLimit

Qual

Antimony

0.244

0.0050

0.25

0.0001

98

70

130

0.2436

0.2

20

Arsenic

0.244

0.0050

0.25

97

70

130

0.2449

0.5

20

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R129992

Run ID :Run Order: SUB-B129992: 14

SampType: Sample Matrix Spike Duplicate

Sample ID: H09050267-003B

Method: E200.8

Analysis Date: 05/27/09 01:22

Units: mg/L

Prep Info: Prep Date:

Prep Method:

Analytes 10

	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.246	0.0010	0.25	0.001	98	70	130	0.2439	0.8	20	
Chromium	0.234	0.010	0.25	0.0008	93	70	130	0.2338	0	20	
Copper	0.242	0.010	0.25	0.002	96	70	130	0.2438	0.7	20	
Lead	0.242	0.010	0.25	0.0004	97	70	130	0.2406	0.7	20	
Mercury	0.00495	0.0010	0.005		99	70	130	0.0048	3.1	20	
Selenium	0.247	0.0050	0.25	0.00585	96	70	130	0.2455	0.5	20	
Thallium	0.239	0.0050	0.25		95	70	130	0.238	0.2	20	
Vanadium	0.240	0.10	0.25	0.0012	96	70	130	0.2416	0.5	20	

Associated samples: H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
A - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R130081

Run ID :Run Order: SUB-B130081: 8 SampType: Initial Calibration Verification Standard Sample ID: QCS - 081021A,090401E, Method: E200.8
080814C

Analysis Date: 05/27/09 13:07		Units: mg/L		Prep Info:				Prep Date:			Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Beryllium		0.025	0.0010	0.025		100	90	110					
Copper		0.050	0.010	0.05		100	90	110					
Zinc		0.050	0.010	0.05		101	90	110					

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B130081: 9 SampType: Method Blank Sample ID: LRB Method: E200.8

Analysis Date: 05/27/09 15:41		Units: mg/L		Prep Info:				Prep Date:			Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Beryllium		ND	2E-05										
Copper		ND	0.0002										
Zinc		0.001	0.0003										

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B130081: 10 SampType: Laboratory Fortified Blank Sample ID: LFB Method: E200.8

Analysis Date: 05/27/09 15:45		Units: mg/L		Prep Info:				Prep Date:			Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Beryllium		0.045	0.0010	0.05		90	85	115					
Copper		0.049	0.010	0.05		99	85	115					
Zinc		0.049	0.010	0.05	0.00134	96	85	115					

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID :Run Order: SUB-B130081: 11 SampType: Sample Matrix Spike Sample ID: B09052195-002AMS Method: E200.8

Analysis Date: 05/27/09 16:33		Units: mg/L		Prep Info:				Prep Date:			Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Beryllium		0.0503	0.0010	0.05	0.00004	101	70	130					
Copper		0.0779	0.010	0.05	0.02967	96	70	130					
Zinc		0.103	0.010	0.05	0.0565	93	70	130					

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits N - Analyte concentration was not sufficiently high to calculate RPD
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: B_R130081

Run ID : Run Order: SUB-B130081: 12		SampType: Sample Matrix Spike Duplicate				Sample ID: B09052195-002AMSD				Method: E200.8		
Analysis Date: 05/27/09 16:37		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium		0.0512	0.0010	0.05	0.00004	102	70	130	0.05034	1.7	20	
Copper		0.0783	0.010	0.05	0.02967	97	70	130	0.07786	0.5	20	
Zinc		0.104	0.010	0.05	0.0565	95	70	130	0.103	1	20	

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID : Run Order: SUB-B130081: 13		SampType: Sample Matrix Spike				Sample ID: H09050267-004B				Method: E200.8		
Analysis Date: 05/27/09 17:22		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium		0.245	0.0010	0.25		98	70	130				
Copper		0.241	0.010	0.25	0.00255	95	70	130				
Zinc		0.244	0.010	0.25	0.00715	95	70	130				

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID : Run Order: SUB-B130081: 14		SampType: Sample Matrix Spike Duplicate				Sample ID: H09050267-004B				Method: E200.8		
Analysis Date: 05/27/09 17:26		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium		0.242	0.0010	0.25		97	70	130	0.2451	1.2	20	
Copper		0.243	0.010	0.25	0.00255	96	70	130	0.2411	0.9	20	
Zinc		0.247	0.010	0.25	0.00715	96	70	130	0.2443	1.2	20	

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Run ID : Run Order: SUB-B130081: 48		SampType: Initial Calibration Verification Standard				Sample ID: QCS - 081021A,090401E, ME080814C				Method: E200.8		
Analysis Date: 05/28/09 00:03		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes	3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium		0.025	0.0010	0.025		102	90	110				
Copper		0.049	0.010	0.05		99	90	110				
Zinc		0.051	0.010	0.05		102	90	110				

Associated samples: H09050267-001B; H09050267-002B; H09050267-003B; H09050267-004B; H09050267-005B; H09050267-006B; H09050267-007B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: R53709

Run ID :Run Order: IC101-H_090520B: 14		SampType: Initial Calibration Verification Standard				Sample ID: ICV				Method: E300.0		
Analysis Date: 05/20/09 13:00		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	2.6	1.0	2.5		106	90	110					
Sulfate	9.3	1.0	10		93	90	110					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 15		SampType: Laboratory Control Sample				Sample ID: LCS				Method: E300.0		
Analysis Date: 05/20/09 13:17		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	87	1.0	87.47		99	90	110					
Sulfate	26	1.0	28.53		91	90	110					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 16		SampType: Laboratory Fortified Blank				Sample ID: LFB				Method: E300.0		
Analysis Date: 05/20/09 13:33		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	4.5	1.0	5		90	90	110					
Sulfate	9.1	1.0	10		91	90	110					

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 17		SampType: Method Blank				Sample ID: MBLK				Method: E300.0		
Analysis Date: 05/20/09 13:49		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	ND	0.05										
Sulfate	ND	0.1										

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 89		SampType: Continuing Calibration Verification Standard				Sample ID: CCV				Method: E300.0		
Analysis Date: 05/22/09 04:09		Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	23	1.0	25		93	90	110					
Sulfate	47	1.0	50		94	90	110					

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount



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Client: Asarco LLC
Work Order: H09050267
Project: Annual RI/FS Long Term Monitoring May 20

ANALYTICAL QC SUMMARY REPORT

Date: 08-Jun-09

BatchID: R53709

Run ID :Run Order: IC101-H_090520B: 89 SampType: Continuing Calibration Verification Standard Sample ID: CCV Method: E300.0

Analysis Date: 05/22/09 04:09 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 97 SampType: Sample Matrix Spike Sample ID: H09050267-004A MS Method: E300.0

Analysis Date: 05/22/09 06:20 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 54 1.0 25 27.97 104 90 110

Sulfate 160 1.0 50 112.4 103 90 110

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 98 SampType: Sample Matrix Spike Duplicate Sample ID: H09050267-004A MSD Method: E300.0

Analysis Date: 05/22/09 06:36 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 54 1.0 25 27.97 103 90 110 53.84 0 20

Sulfate 160 1.0 50 112.4 102 90 110 163.9 0.3 20

Associated samples: H09050267-001A; H09050267-002A; H09050267-003A; H09050267-004A; H09050267-005A; H09050267-006A; H09050267-007A

Run ID :Run Order: IC101-H_090520B: 102 SampType: Continuing Calibration Verification Standard Sample ID: CCV Method: E300.0

Analysis Date: 05/22/09 07:42 Units: mg/L Prep Info: Prep Date: Prep Method:

Analytes	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Chloride 23 1.0 25 94 90 110

Sulfate 48 1.0 50 95 90 110

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Energy Laboratories Inc

Workorder Receipt Checklist



H09050267

Asarco LLC

Login completed by: Roxanne L. Tubbs

Date and Time Received: 5/19/2009 3:30 PM

Reviewed by: BL2000\blackburn

Received by: rlt

Reviewed Date: 5/21/2009 8:17:17 AM

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature:	4.1°C		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Contact and Corrective Action Comments:

None